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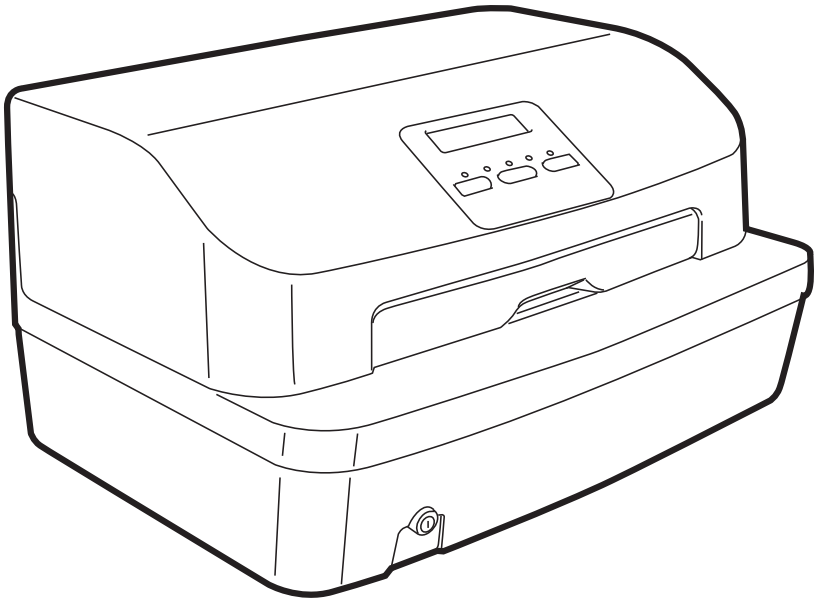

Printer

PR2 PLUS

SERVICE MANUAL

Code: XZAC4219-05

PUBLICATION ISSUED BY:

Olivetti S.p.A.
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PREFACE

This manual for Service engineers supplies all the technical information required for installing, testing and carrying out maintenance interventions on the specialised **PR2 PLUS** printer.

This manual can help you resolve a printer malfunctioning problem, when the solutions proposed in the Operating Manual provided in the printer kit are not successful.

SUMMARY

The manual is subdivided into 8 chapters and an Appendix:

- **Chapter 1 Introduction** - provides information of a general nature on the printer.
- **Chapter 2 Installation** - describes the procedures and standards to follow for installing the printer.
- **Chapter 3 Operating the Printer** - examines the operating procedures to follow to operate the printer correctly.
- **Chapter 4 Programming and Calibration** - describes the procedures for programming the printer and calibrating it.
- **Chapter 5 Diagnostics** -all the defects that can be detected by the printer's diagnostics system are listed here.
- **Chapter 6 Maintenance** - an illustrated procedure describes the cleaning, lubrication and mechanical adjustments that may be necessary for the printer.
- **Chapter 7 Disassembling and Reassembling Parts** - describes the procedures for disassembling and reassembling again the main components of the printer.
- **Chapter 8 Installing the Printer Options** - provides the procedures for installing additional features of the printer.
- **Appendix** - provides information regarding obtaining spare parts, and the software installed on the printer. An illustrated procedure also describes how to update the printer firmware.

PRE-REQUISITES

The approach to the topics covered in this manual requires knowledge of similar products.

TECHNICAL SUPPORT CONTACTS

Email address: Banking.Printers@Olivetti.com
WEB Site: www.Olinet.biz

REFERENCES

Spare parts catalogue - cod. XZAC3455

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Chapter 1 - OVERVIEW

INTRODUCTION

The **PR2 plus** is a mid-range specialized printer for the banking environment able to handle documents (both multi-copy and not) and passbooks for deposit/withdrawal transactions.

This highly versatile printer can also be used for Public Administration front-office transactions or in Post Offices.

The **PR2 plus SC** model of the printer integrates a colour scanner with a front/back 600 dpi resolution The printer can be configured with the following optional components:

- "Horizontal Magnetic" unit for reading/writing horizontal magnetic stripes
- MICR (Magnetic Ink Character Reader) unit for reading CMC7 / E13B characters printed on cheques.
- Console with optional LCD display (shown in the following figure).

The **PR2 Plus** printer is available with or without an LCD display.

The table below indicates the different configurations in which the PR2 Plus printer is available:

VERSION	***CONFIGURATION***
PR2 plus 10	Basic model with RS232, Parallel and USB ports
	Basic Model - Passport version
PR2 plus SC	Model PR2 plus 10 with scanner
PR2 plus 12	PR2 plus 10 with horizontal magnetic unit
PR2 plus 12 M	PR2 plus 12 with horizontal magnetic unit and MICR reader

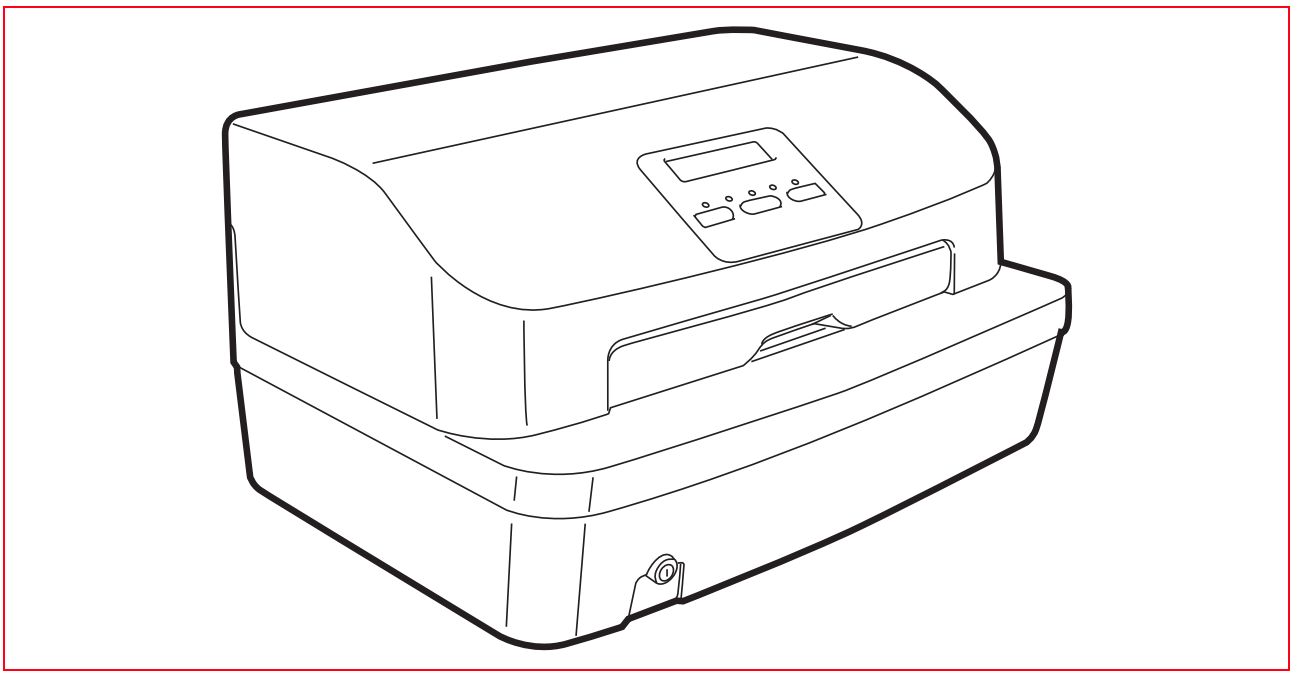


Figure 1 - 1 PR2 Plus Printer

TECHNICAL SPECIFICATIONS

CHARACTERISTICS OF THE PRINTHEAD	Technology	Impact needle matrix			
	Needle diameter	0,25 mm			
	Frequency	2295 Hz			
	Max. nominal speed	560 cps a 10cpi			
	Thermal protection	PTC - Overheating safety sensor. If the critical temperature threshold is exceeded, printing is interrupted.			
PRINT SPEED AND DEFINITION	**Mode**	**Cps**	**Copies**	**Matrix (VxH)**	**Definition (VxH)**
	VHSD	560	1 + 1	24 x 4+3+1	1/80” H 1/180” V
	HSD	510	1 + 2	24 x 4+3+2	1/90” H 1/180” V
	Draft	370	1 + 4	24 x 5+4+3	1/120” H 1/180” V
	NLQ	185	1 + 5	24 x 18+6	1/240” H 1/180” V
	LQ	125	1 + 6	24 x 36	1/360” H 1/180” V
	BIM (min.)	2000 (dps)			1/120” H 1/180” V
	BIM (max.)	2000 (dps)			1/360” H 1/180” V
PRINT RIBBON	Type	Indelible in carbon-free pigmentation tissue			
	Color	Black			
	Duration	About 10 Million characters			
FONT AND CHARACTER SET	Optical reading	OCR A-B			
	Alphanumeric	Roman, Sans Serif, Italic, Courier			
PAPER INSERTION	Via front slot with automatic document alignment.				
DOCUMENT DIMENSION	Module:	Width 65 min. - 247 max. Length: 70 mm min x 297 mm min.			
CONSOLE	Located on the printer cover and composed of three keys and five LEDs Optionally an alphanumerical LCD display can be integrated				
EMULATIONS	Standard	Olivetti standard IBM PP & X24			
	Optional	IBM 4722/9068 WINCOR 4915 EPSON LQ 2550 UNISYS EFP series			
INTERFACES	Serial	RS 232C,			
	Parallel	IEEE 1284 (Nibble, BYTE) - ECP			
	USB	1.0 e 2.0			

DIMENSIONS	Width:	384 mm
	Depth:	296 mm
	Height:	204 mm
	Weight	10.5 Kg
POWER CONSUMPTION	Stand-by: < 15 W - The product conforms with the requirements of the «Energy Star» trademark	
	During printing: 170 W max (worst performance)	
POWER SUPPLY	230 Vac + 10%	
	50/60 Hz	

DOCUMENTS THAT CAN BE HANDLED BY THE BASIC MACHINE

- **SINGLE FORM**
  - Width 65 x 245 mm
  - Length 297 x 70
  - Single sheet thickness 0.07 ÷ 0.28 mm
  - Single sheet weight 60 ÷ 160 gr/m^2
  - Chemical paper copies n°1+4 (medium weight) LQ: n°1+6
  - Carbon paper copies n°1+4 (medium weight) LQ: n°1+6
- **PASSBOOK WITH VERTICAL BINDING**
  - Width max. (open) 241 mm
  - Width min. (open) 150 mm
  - Length max. 220 mm
  - Length min. 85 mm
- **PASSBOOK WITH HORIZONTAL BINDING**
  - Width max. 241 mm
  - Width min.150 mm
  - Length max. (open) 220 mm
  - Length min. (open) 165 mm
- **OTHER CHARACTERISTICS**
  - Max. thickness (open) (in the passport version, the maximum thickness is 5 mm)
  - Max. diff. In thickness between pages1,2 mm
  - Cover thickness 0,2 to 0,5 mm
  - Type of binding permitted: thread seam
  - Joining radius of outer corners 3 to 14 mm

LOCATION OF MAIN COMPONENTS

The following figure illustrates the main external components of the printer.

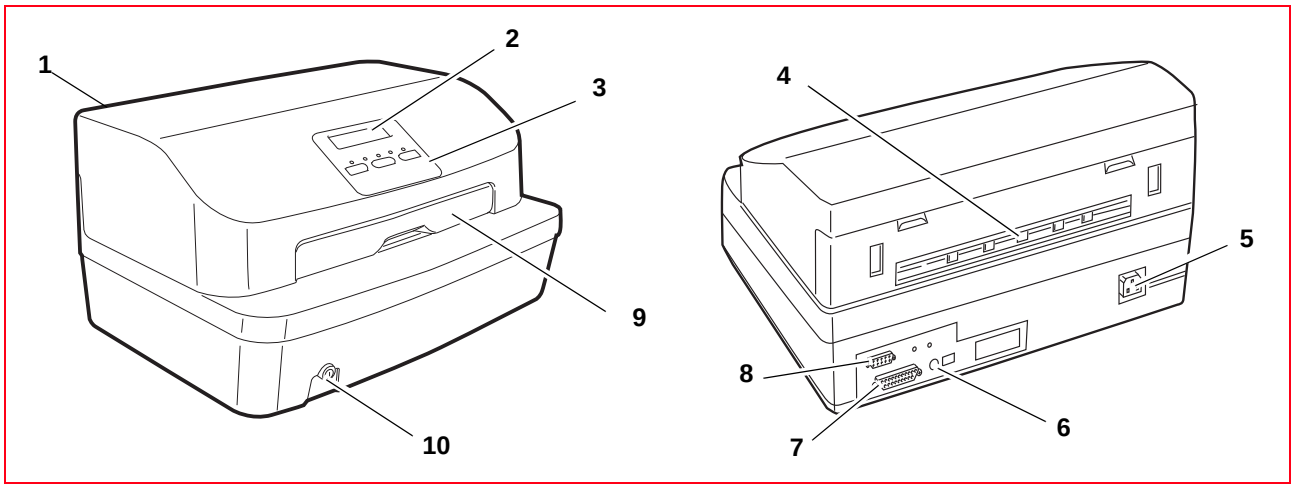


Figure 1 - 2 Location of main external components

1	Cover	**6**	USB interface connector
2	Display	**7**	Parallel interface connector
3	Console	**8**	Standard serial interface connector
4	Rear slot	**9**	Front slot
5	Mains connector cable	**10**	ON/OFF switch

The following figure illustrates the main internal components of the printer.

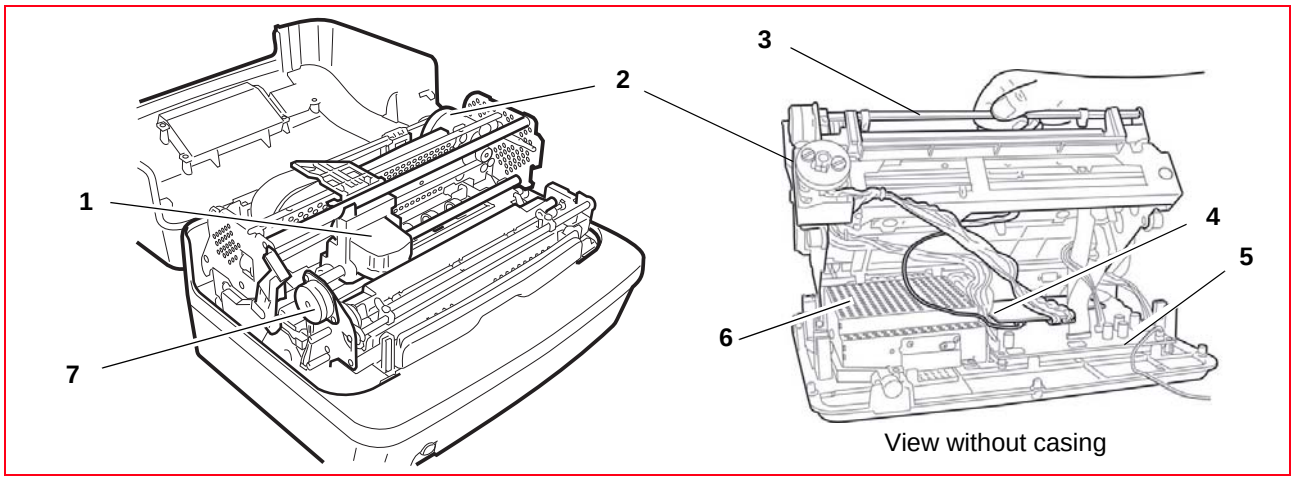


Figure 1 - 3 Position of main internal components

1	Printhead	**5**	Motherboard
2	Carriage transport motor	**6**	Power supply unit
3	Upper part of mechanical assembly	**7**	Services motor
4	Magnetic options board		

GENERAL BLOCK DIAGRAM

The schema represented in the following figure illustrates the most complete version of the printer, with all the options and including the scanner. For other versions of the motherboard used for the PR2 Plus printer, only the connectors will be indicated.

In the following schema are indicated also the connectors for connecting the peripherals and the motherboard.

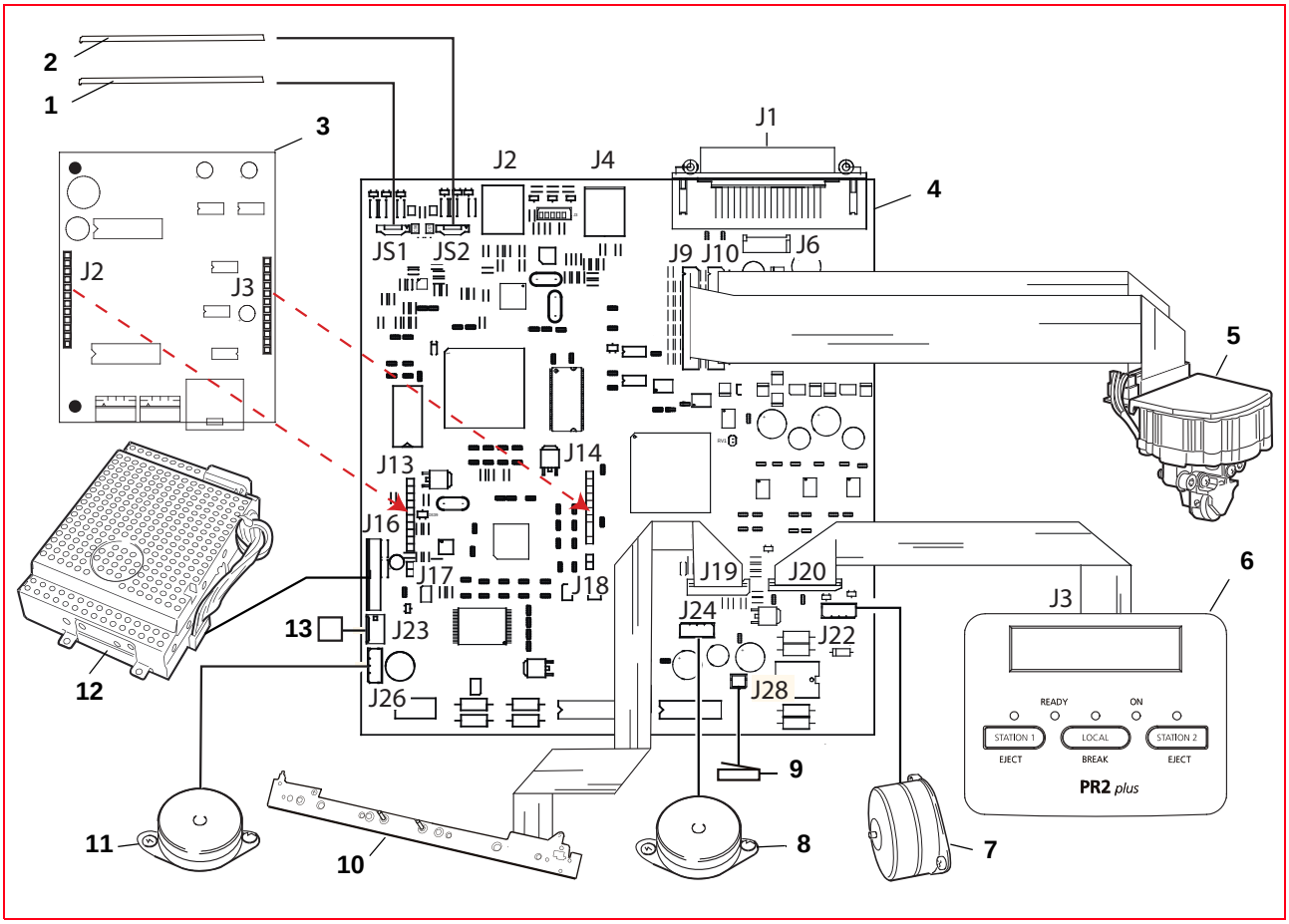


Figure 1 - 4 Block Diagram

1	Front CIS	**8**	Paper feeder motor
2	Back CIS	**9**	Cover sensor
3	Magnetic options interface (Horizontal Magnetic or MICR)	**10**	Paper presence/alignment photosensors
4	Motherboard (Version with scanner)	**11**	Services motor
5	Printhead	**12**	Power supply unit
6	Console	**13**	Front paper present photosensor
7	Printhead carriage motor		

MOTHERBOARD

Different motherboards have been used with the PR2 Plus printer as it has evolved, on the basis of its configuration. All the various versions are covered below.

Motherboard (scanner version cod. XYAB3468 and XYAB3871)

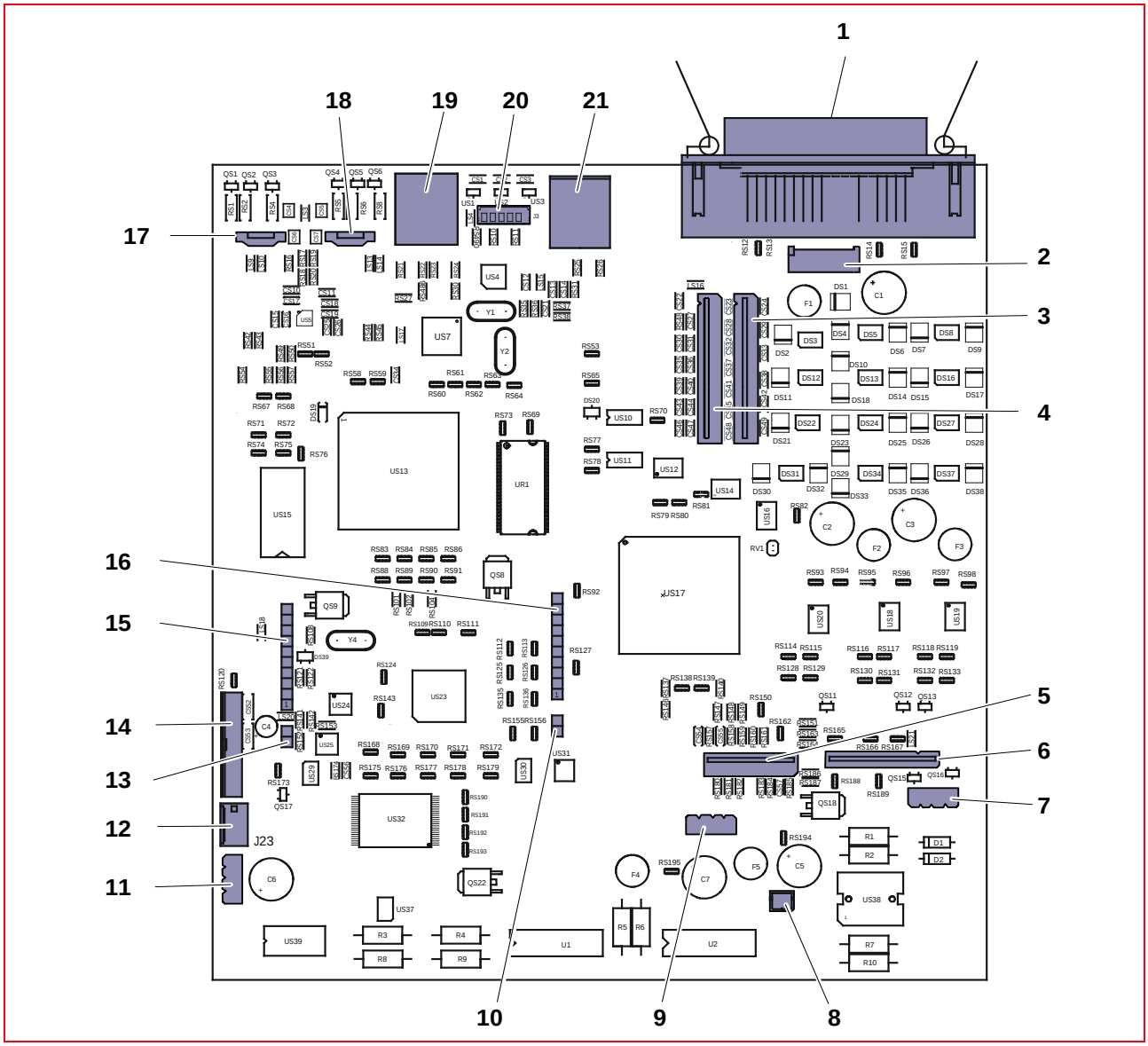


Figure 1 - 5 Motherboard layout (scanner version) identifying the location of the connectors

1	Parallel interface connector	**12**	Carriage reset photosensor connector
2	Serial interface connector	**13**	SBI signal connector of the card for MICR configuration
3	Printhead connector	**14**	Power unit connector
4	Printhead connector	**15**	Signal connector for cards for Horizontal Magnetic and MICR configurations
5	Alignment device photosensors	**16**	Power and signals connector for Horizontal Magnetic and MICR configuration cards
6	Console connector	**17**	Front CIS (scanner) connector
7	Carriage motor connector	**18**	Rear CIS (scanner) connector
8	Open/close cover sensor connector	**19**	Connector for USB ports (two at rear) from HUB to peripherals (only for code XYAB3871)
9	Paper motor connector	**20**	USB port connector (on front) from HUB to peripheral (only for code XYAB3871)
10	Analogue signal connector of the card for MICR configuration	**21**	USB port connector (to host)
11	Services motor connector		

Motherboard (machines with serial number 8.xxx.xxx)

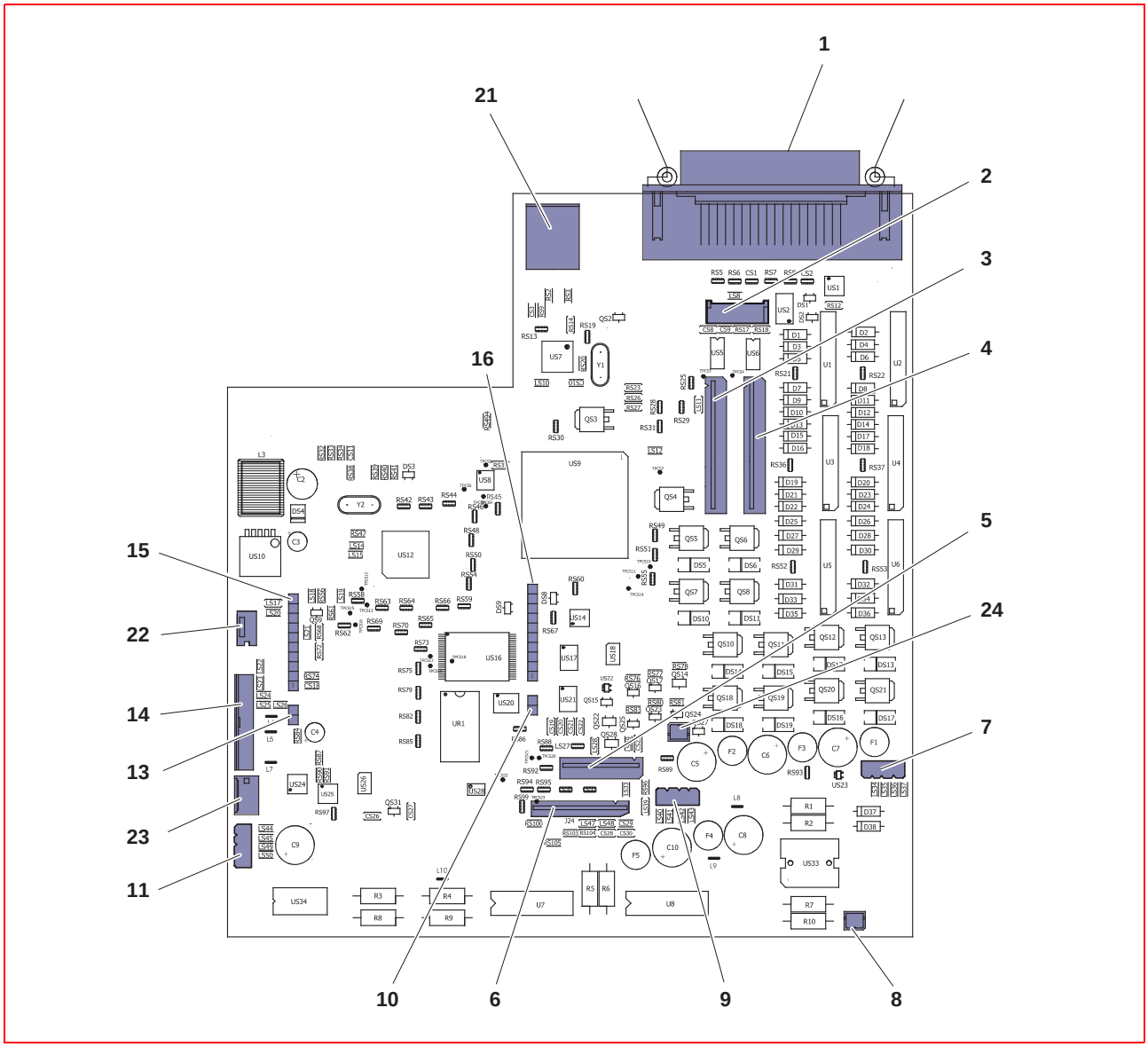


Figure 1 - 6 Motherboard layout (printer version with serial number 8.xxx.xxx) and location of connectors

1	Parallel interface connector
2	Serial interface connector
3	Printhead connector
4	Printhead connector
5	Alignment device photosensors
6	Console connector
7	Carriage motor connector
8	Open/close cover sensor connector
9	Paper motor connector
10	Analogue signal connector of the card for MICR configuration
11	Services motor connector
13	SBI signal connector of the card for MICR configuration
14	Power unit connector
15	Signal connector for cards for Horizontal Magnetic and MICR configurations
16	Power and signals connector for Horizontal Magnetic and MICR configuration cards
21	USB port connector (to host)
22	Connector for optional rear photosensors
23	Connector for cover open/closed sensor
24	Power supply for optional fan

Motherboard (machines with serial number 1.xxx.xxx - one serial interface)

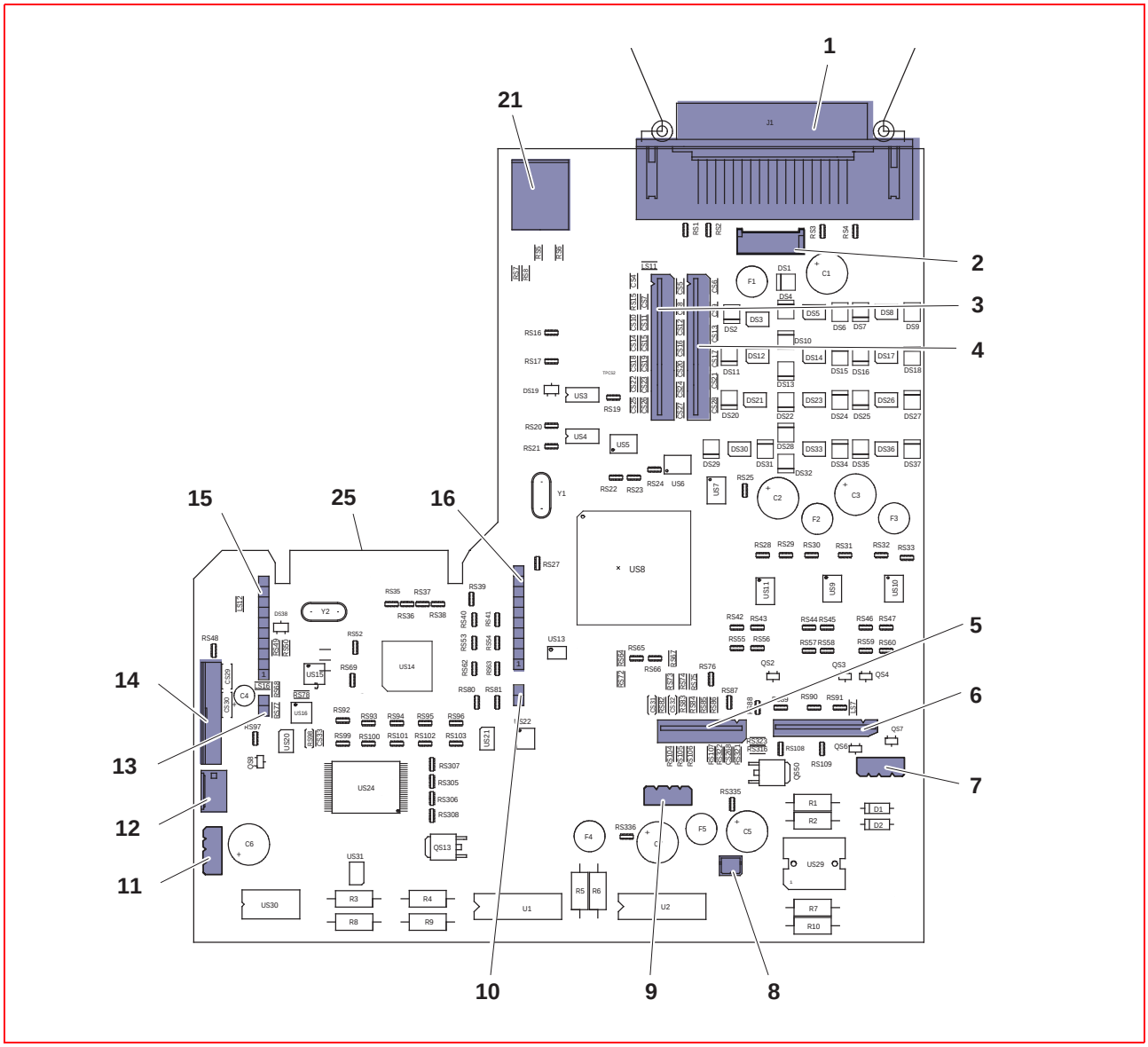


Figure 1 - 7 Motherboard layout (printer versions with serial number 1.xxx.xxx - one serial interface) and location of connectors

1	Parallel interface connector	**10**	Analogue signal connector of the card for MICR configuration
2	Serial interface connector	**11**	Services motor connector
3	Printhead connector	**12**	Carriage reset photosensor connector
4	Printhead connector	**13**	SBI signal connector of the card for MICR configuration
5	Alignment device photosensors	**14**	Power unit connector
6	Console connector	**15**	Signal connector for cards for Horizontal Magnetic and MICR configurations
7	Carriage motor connector	**16**	Power and signals connector for Horizontal Magnetic and MICR configuration cards
8	Open/close cover sensor connector	**21**	USB port connector (to host)
9	Paper motor connector	**25**	Expansion board connector (for optional Ethernet LAN Card)

Motherboard (printer version with two serial interfaces)

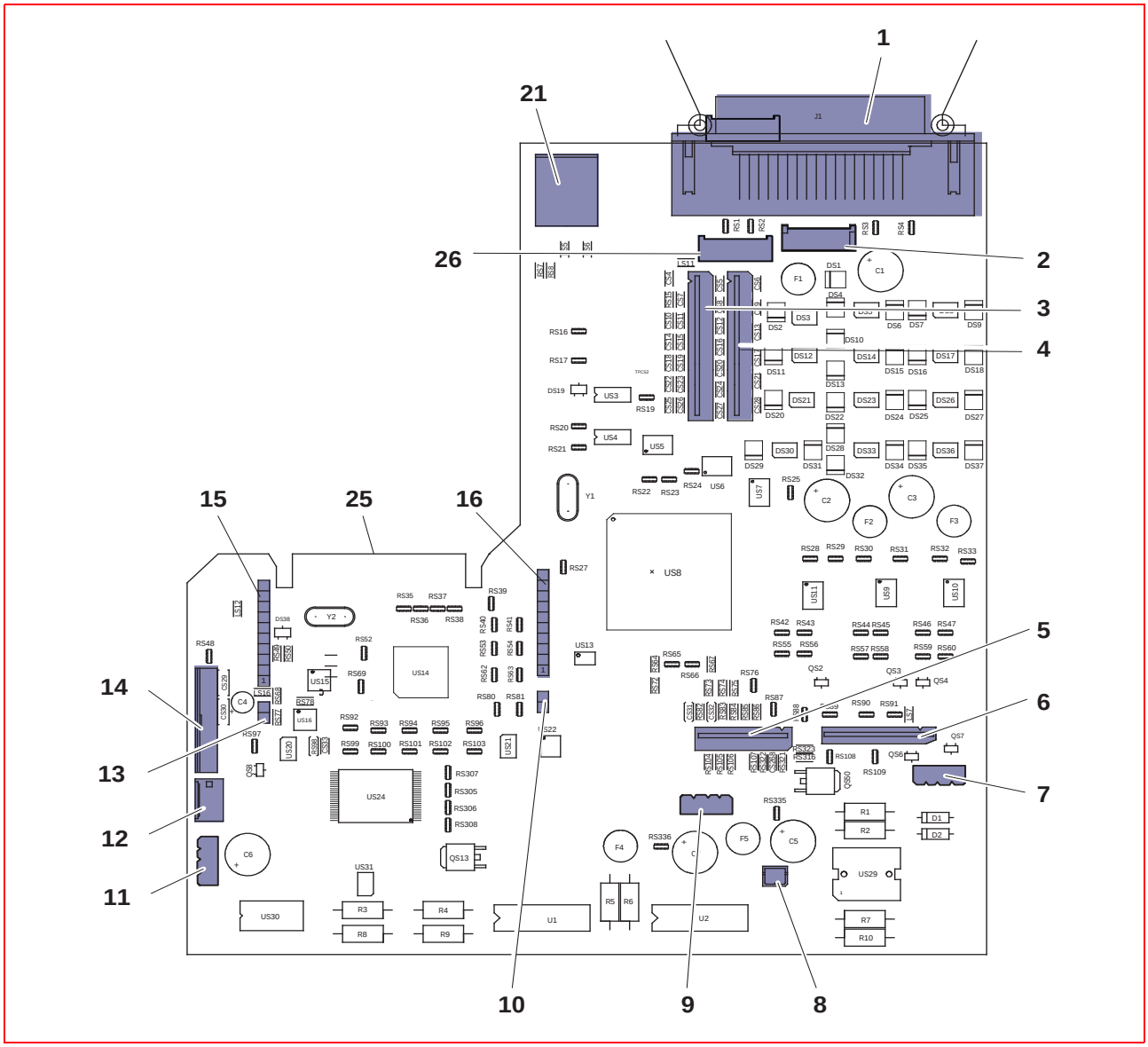


Figure 1 - 8 Motherboard layout (printer version with two serial interfaces) and location of connectors

1	Parallel interface connector	**11**	Services motor connector
2	Serial 1 interface connector	**12**	Carriage reset photosensor connector
3	Printhead connector	**13**	SBI signal connector of the card for MICR configuration
4	Printhead connector	**14**	Power unit connector
5	Alignment device photosensors	**15**	Signal connector for cards for Horizontal Magnetic and MICR configurations
6	Console connector	**16**	Power and signals connector for Horizontal Magnetic and MICR configuration cards
7	Carriage motor connector	**21**	USB port connector (to host)
8	Open/close cover sensor connector	**25**	Expansion board connector (for optional Ethernet LAN Card)
9	Paper motor connector	**26**	Serial port 2 interface connector
10	Analogue signal connector of the card for MICR configuration		

MAGNETIC OPTION CARDS

Horizontal Magnetic and MICR interface cards for managing the optional magnetic units can be connected to the motherboard:

- Horizontal magnetic unit - interface card code XYAB3124 - to connect to the special connectors on the motherboard;
- MICR unit - interface card code XYAB1564 - to connect to the special connectors on the motherboard.

Horizontal magnetic unit

This device can read/write **horizontal magnetic** stripes. It consists of a mobile magnetic printhead that operates across the insertion slot with a specific controlled-movement mechanism.

It operates across the entire insertion slot of the printer and does not involve any particular constraints as regards positioning of the passbook inserted.

The operation on the stripe is carried out exerting controlled pressure on the passbook to guarantee uniform distance between the printhead and the magnetic support.

- R/W reference standards: DIN ISO 32744, IBM 3604, ANSI;
- alignment: autoborder;
- error rate: <1/10000 (after three automatic retries).

The following figure provides an illustration of the interface card that is connected to the special connectors on the motherboard.

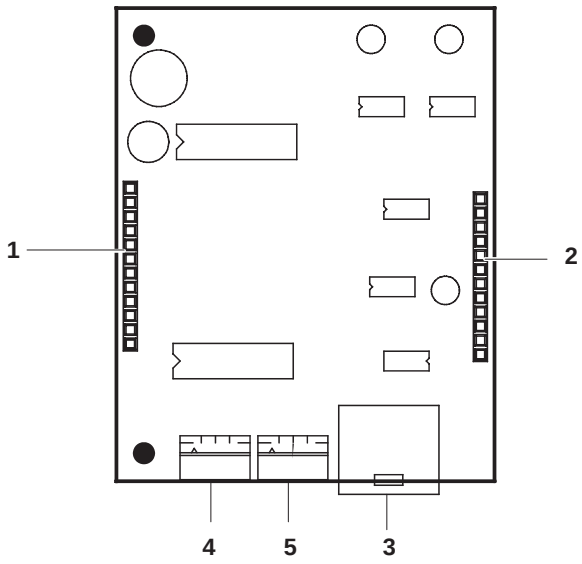


Figure 1 - 9 Layout of optional Horizontal Magnetic interface card indicating the locations of the connectors

1	Connector for power and motor signals from the motherboard	**4**	Connector for photosensor for resetting transport motor of magnetic head
2	Connector for signals from the motherboard	**5**	Connector for magnetic head transport motor
3	Connector for magnetic head		

MICR reader

The MICR (*Magnetic Ink Character Reader*) reader technology allows CNC7 / E13B characters printed on cheques to be read.

The reader, located inside printer, operates crosswise to the direction of movement of the paper.

It comprises a read head able to operate also on passbook magnetic stripes, fitted on a specific mechanism that guarantees correct traverse during work phases.

The read range is equal to the size of the slot. A position restriction on the right-hand side of the feeder is accepted. If present, this restriction must be highlighted by a graphic sign on the top lip of the slot.

The interpretation SW must be able to recognize the font of the check being read automatically (objective).

CHARACTERISTICS	***FONT***	***CODING***
Fonts recognized	CMC7	ISO 1004-1992 part one, E 13B ISO 1004-1992 part two
Spacing	CMC7, E13B	8 cpi
Reader position	Lower side of the paper path	

The following figure provides an illustration of the interface card that is connected to the special connectors on the motherboard.

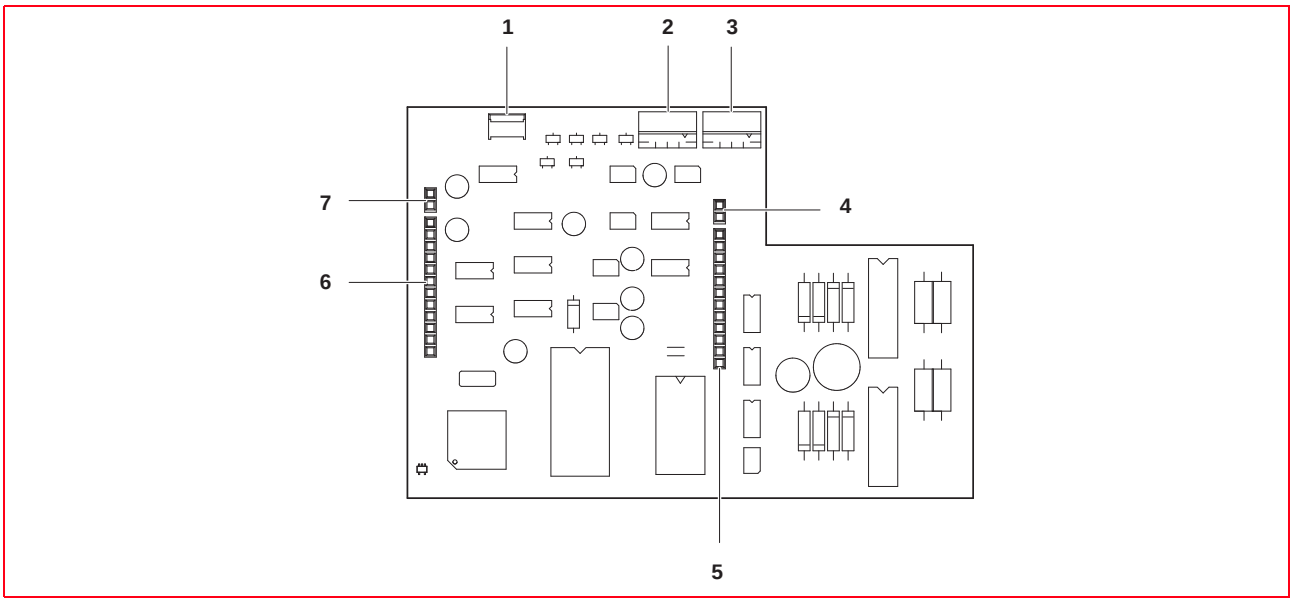


Figure 1 - 10 Layout of interface card for MICR option and location of connectors

1	MICR head connector	**5**	Connector for power and motor signals from the motherboard
2	Connector of photosensor for resetting transport motor of MICR head	**6**	Connector for signals from the motherboard
3	MICR motor connector	**7**	Connector for SBI signals from the motherboard
4	Connector for analogue signal to the motherboard		

SCANNER

A fast color scanner with a resolution of 600 dpi is included. The scanner features a fixed lower image acquisition element (CIS) and a mobile upper element that moves from the top down when activated. This action makes it possible for the printer to maintain the same throughput, in terms of documents managed, as the standard PR2 plus.

When only the upper element is present, a specific closing element replaces the shape of the lower scanning element. The layout of the two scanners takes into account the fact that it must be possible to activate these at the same time, eliminating optical disturbances (shadow images) that may occur with particular types of paper.

Scanner technical data

- Type of scanner: contact;
- Technology: CIS;
- Resolution: 600 dpi;
- Illumination: set of LEDs;
- Type of illumination: red, green, blue (RGB);
- Lighting method: monochrome or color (RGB) (factory alternative, monochrome and infrared);
- Type of light control: SW controlled;
- Light intensity: SW controlled;
- Image acquisition:
  - white black;
  - 16 shades of gray;
  - 256 shades of gray;
  - RGB (colore) or IR factory alternative;
  - legacy mode (200 dpi, PR2 E compatible);
- CIS physical width: 216 mm;
- Scanning width: 210 mm max;
- Number of pixels: 4960;
- Scanning speed:
  - 10 inch/s grayscale single side;
  - 8 inch/s grayscale double side;
  - 3.3 inch/s color single side (double side requires two passes);
- Horizontal scanner position: aligned with the left-hand side of the slot;
- Scanning format:
  - (W) 65 to 210 mm
  - (H) 70 to 297 mm;
- Type of documents handled: constant thickness;
- Double scanner operativity: concurrent (grayscale) or subsequent;
- Available memory: 8 MB or above;
- Transmission: superimposed on scanning;
- Type of interface used: USB;
- Control of threshold value for black/white: managed with specific command;
- Image format output : BIT stream

ALIPR2 POWER SUPPLY

On the power unit controller board a fuse is provided to protect the printer from mains peaks and high charges.

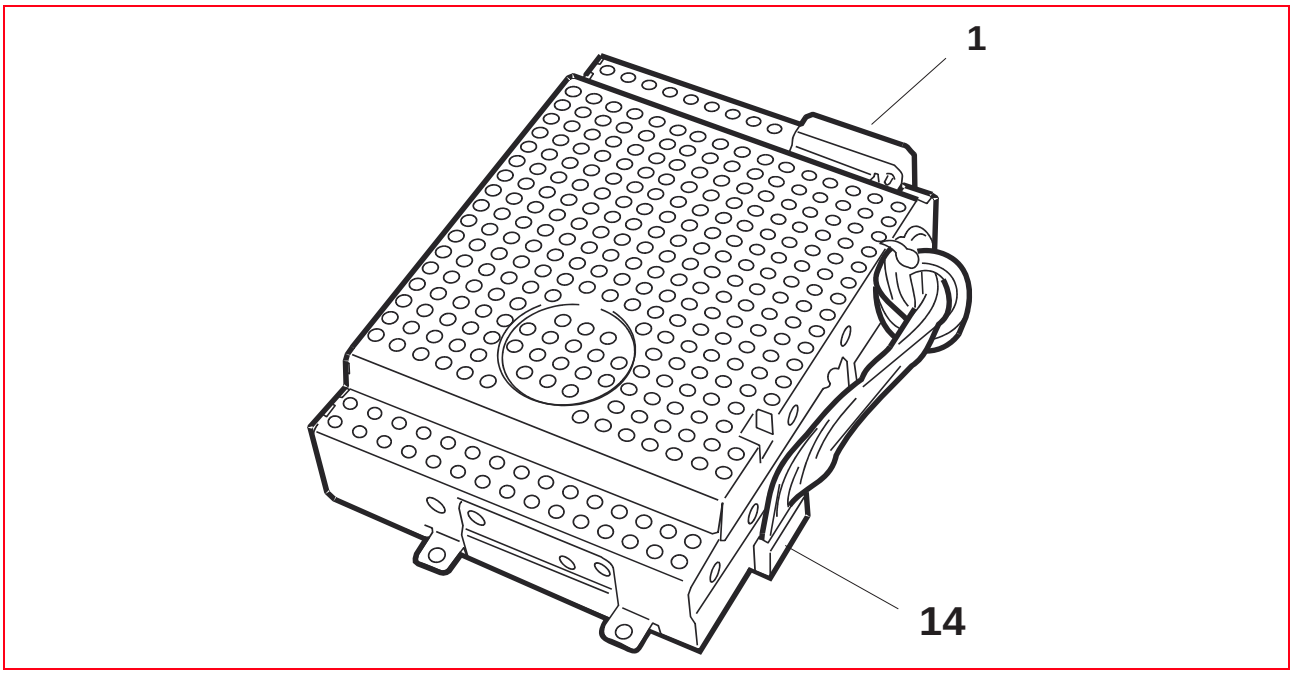


Figure 1 - 11 Power supply unit

Connector pin-out and fuse ratings

The signals on the power unit connectors are given in the following.

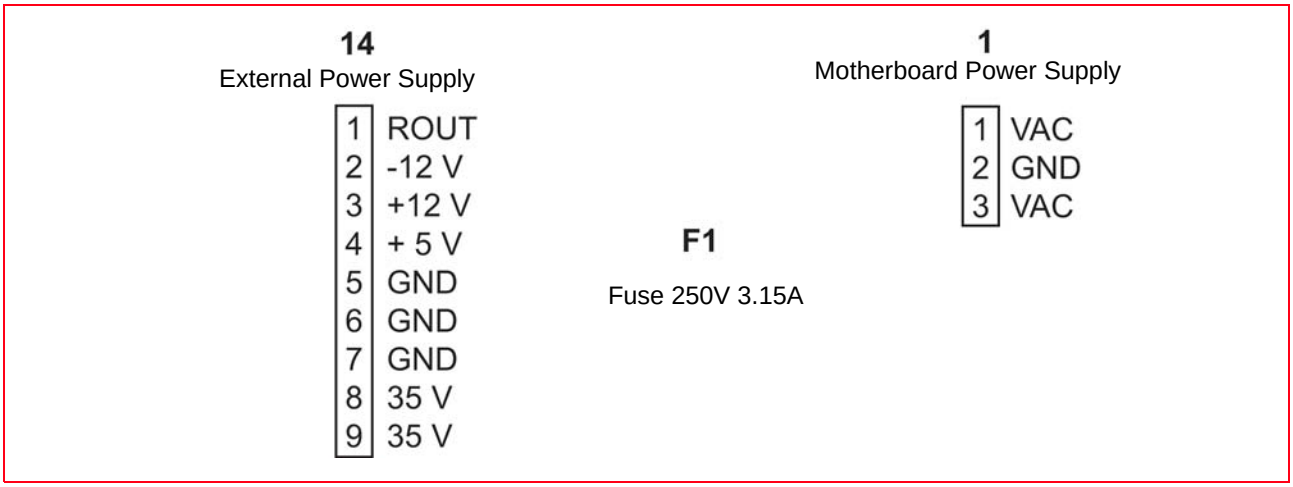


Figure 1 - 12 Power unit connectors

CONSOLE

The PR2 Plus console comprises 3 keys, 5 LEDs and a display. For the meanings of the LEDs and keys, refer to the section “Console keys and LEDs” on page 3 - 2.

A magnetic switch (Dry-reed) signals to the motherboard when the upper cover of the printer is opened.

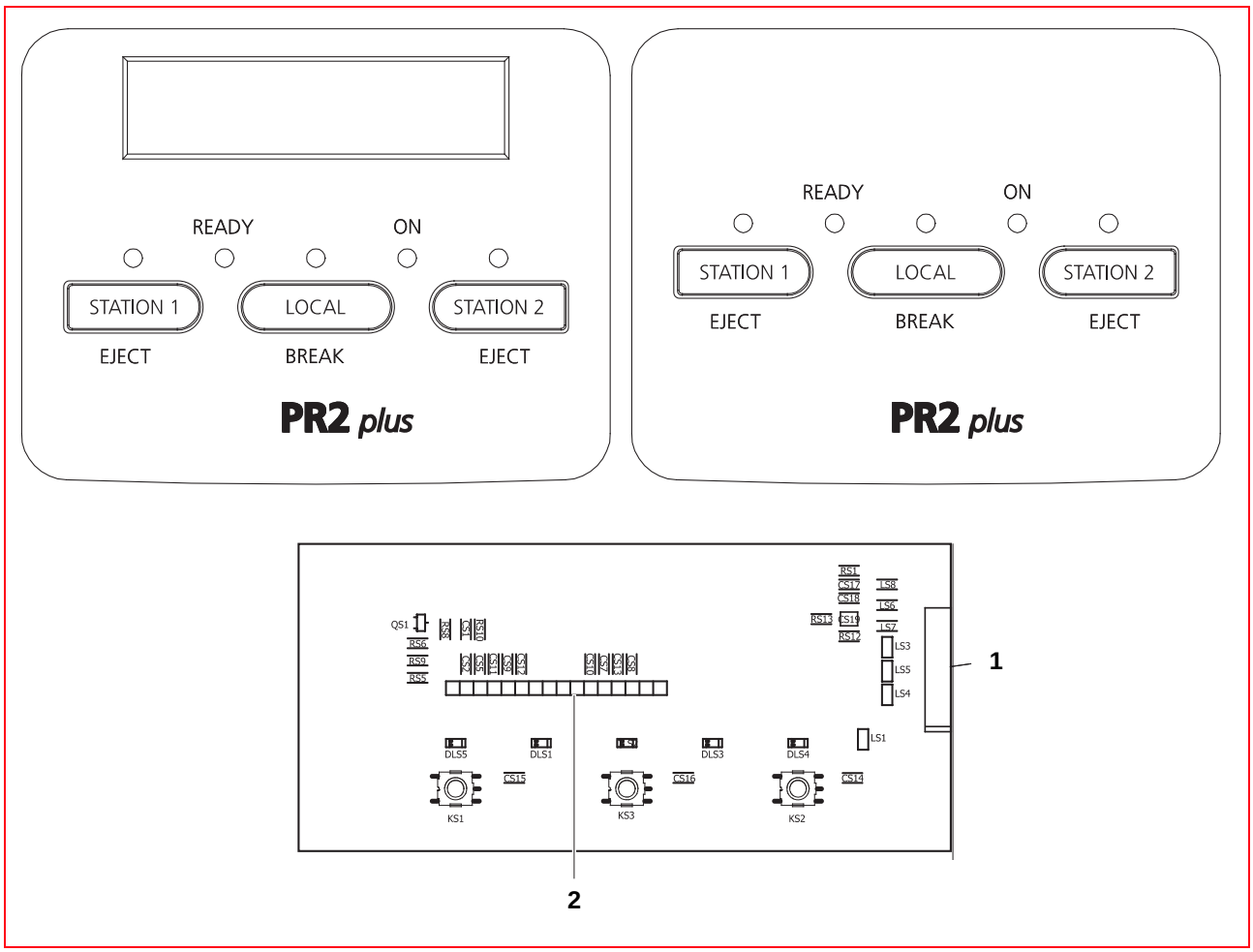


Figure 1 - 13 Console

1	Flat cable connector of the console for connection to the motherboard	**2**	Connector for alphanumerical display

Chapter 2 - INSTALLATION

GENERAL INFORMATION FOR INSTALLATION

For optimum printer operation and to avoid servicing for causes that do not depend on the product, comply with the information provided below.

Power supply

Check that the electrical outlet to which the printer is connected has a ground connection and is suitably scaled to provide the power required by the machine. An outlet without a ground connection may cause malfunctions and generate safety problems.

Do not connect the printer to power supply lines shared with appliances that may cause electrical disturbances and excessive variations in voltage (fans and air conditioners, large photocopiers, lift and goods-lift motors, radio TV transmitters and signal generators, high frequency safety devices, etc.).

Normal office machines (calculators, typewriters, small photocopiers, terminals and PC) may be connected on the same line provided that they do not cause too many disturbances.

Environmental conditions

The environmental conditions in which the product may remain for an indefinite time are those indicated by AB quality objectives: normal, conditioned office environment (environmental temperature 15/35 0C, relative humidity 15/85% HU).

Variations in environmental conditions such as to cause condensation must be avoided both during storage and functioning. Dust, dirt and smoke may cause excess wear of moving parts, short-circuits (in the presence of high humidity) and read/write errors during the various operations. High temperatures and low levels of humidity may cause problems due to static electricity.

Locating the machine

- The printer must be installed on a flat, firm, vibration-free surface.
- Do not install the printer close to ventilation systems, sources of heat or points exposed directly to the rays of the sun.
- Do not obstruct the ventilation slots of the printer.
- If the machine is fitted inside a cabinet, check good ventilation to avoid dangerous overheating.
- Install the machine in a position that does not prevent removal of documents along the paper paths.

Unpacking

Check the contents of the packing. This must contain:

1. PR2 Plus printer in the requested configuration.
2. Mains cable.
3. Ribbon cartridge.
4. User manual.
5. Card for cleaning the magnetic head (only for Horizontal Magnetic and MICR options).

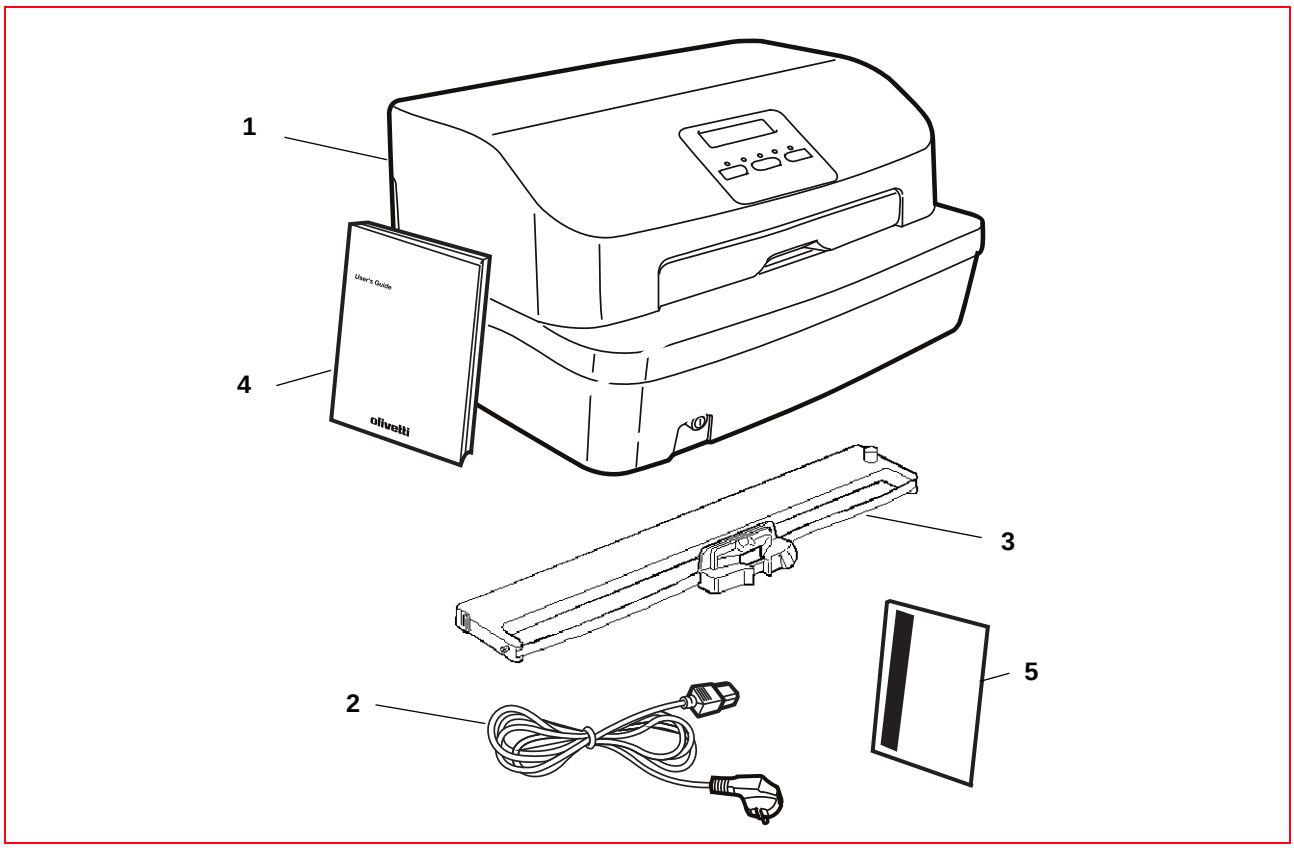


Figure 2 - 1 Contents of the packaging

WARNING: preserve the original packagings and protective material inserted inside the printer.

1. Remove the machine from the bag.
2. Completely open the upper cover of the printer.

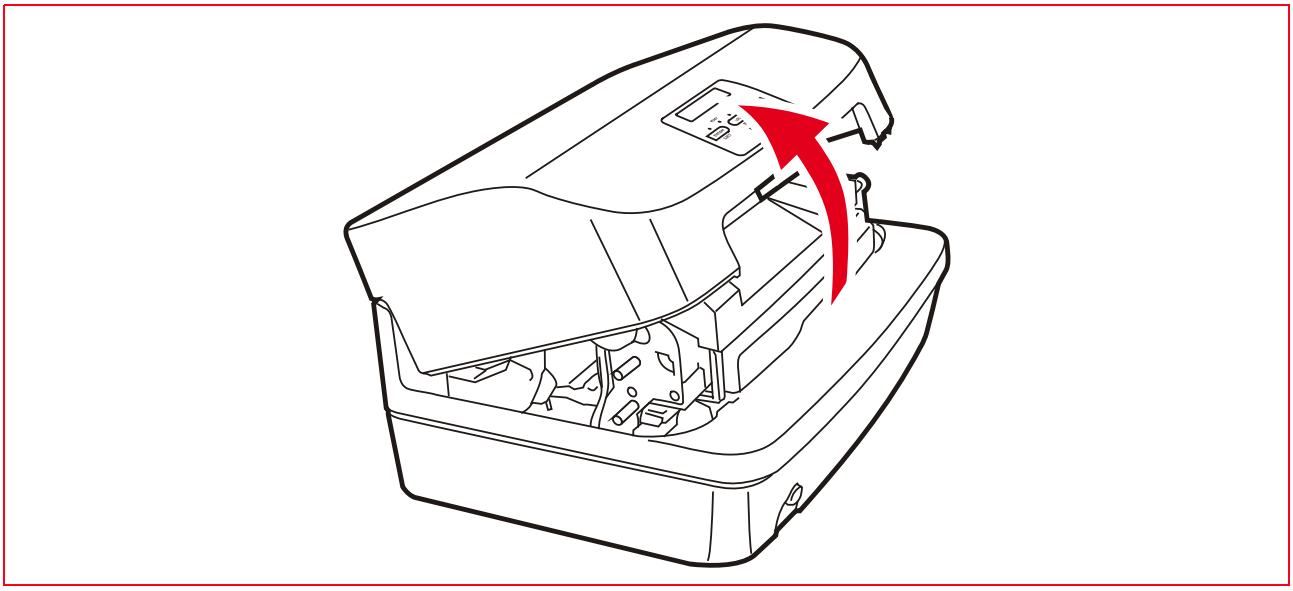


Figure 2 - 2 Opening the upper cover

3. Remove the protective material that has been inserted for transportation. Extract the card **(1)** and remove the foam padding from the side **(2)** and the front **(3)**.

WARNING: before using the printer, remove the card and the foam padding provided for its protection. Preserve these protections so that they are available if in the future transportation of the printer is necessary.

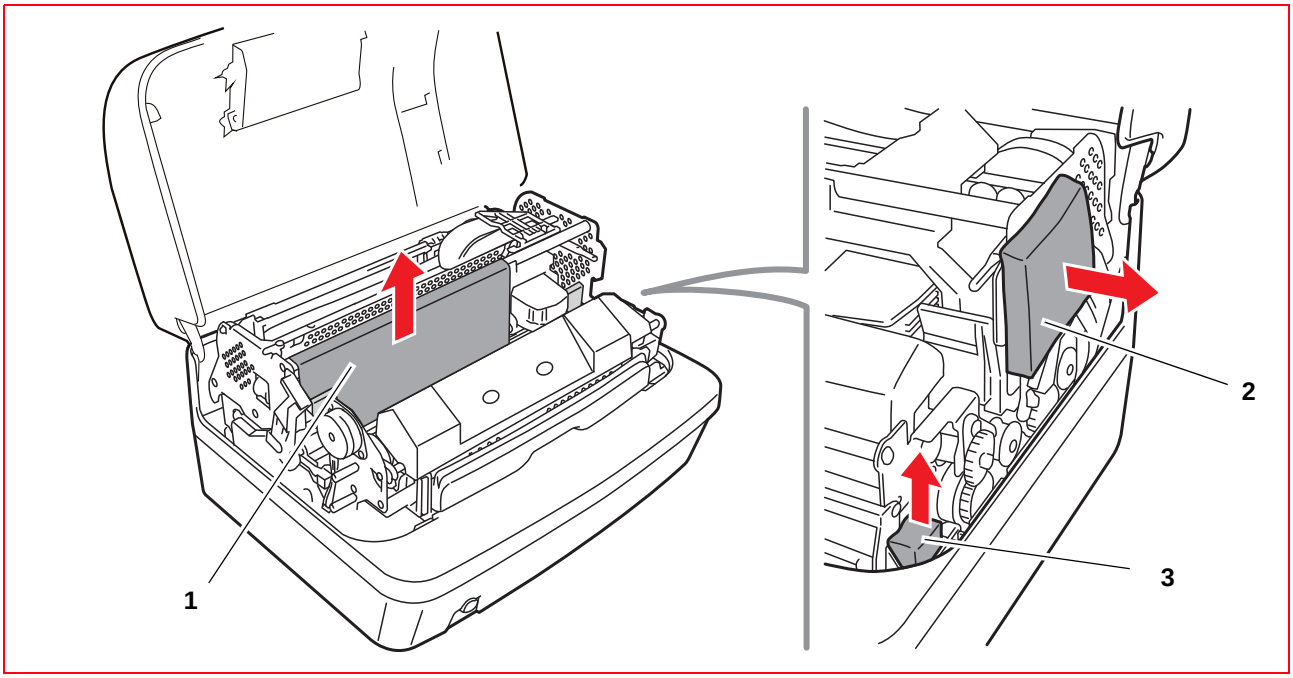


Figure 2 - 3 Removing the protections provided for transportation purposes.

4. Release the two red plastic stop brackets inserted for transportation purposes **(1)**. (These brackets block the printing carriage and the upper mechanical assembly).

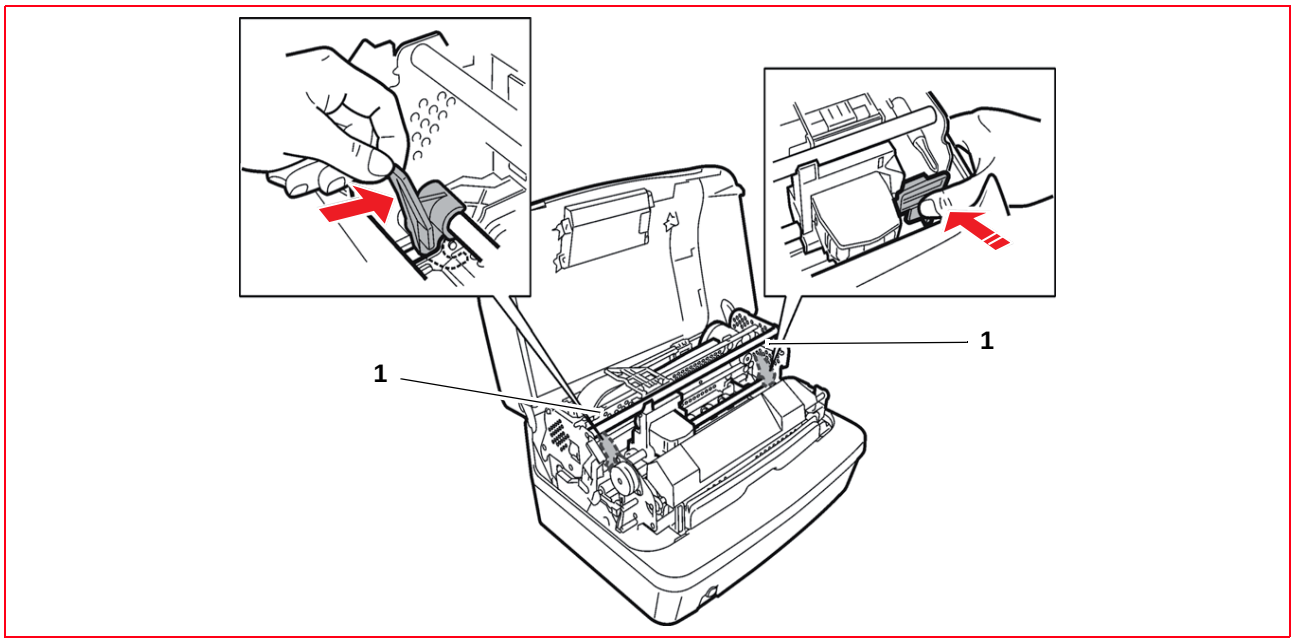


Figure 2 - 4 Removing transport blocking devices

5. Raise the upper group using the lever provided **(1)**.

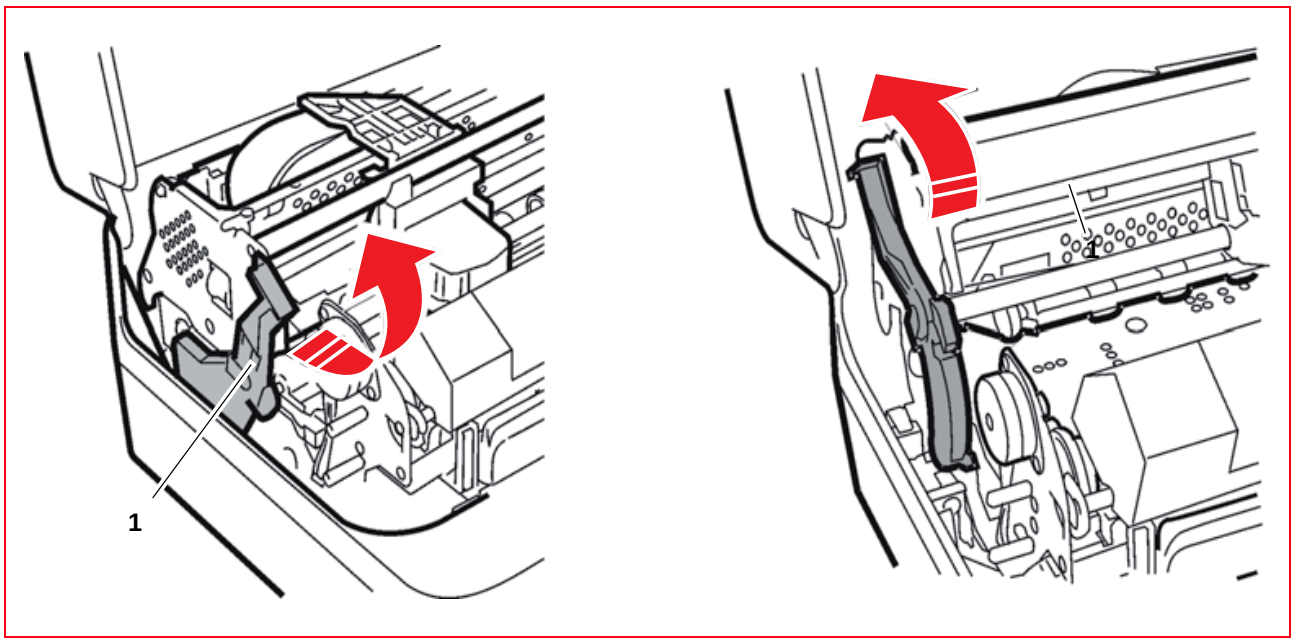


Figure 2 - 5 Lever for lifting upper mechanical assembly

6. Check that the printer has not been damaged during transport.

7. Remove the two red plastic stop brackets inserted for transportation **(1)**. (These brackets block the printing carriage and the upper mechanical assembly).

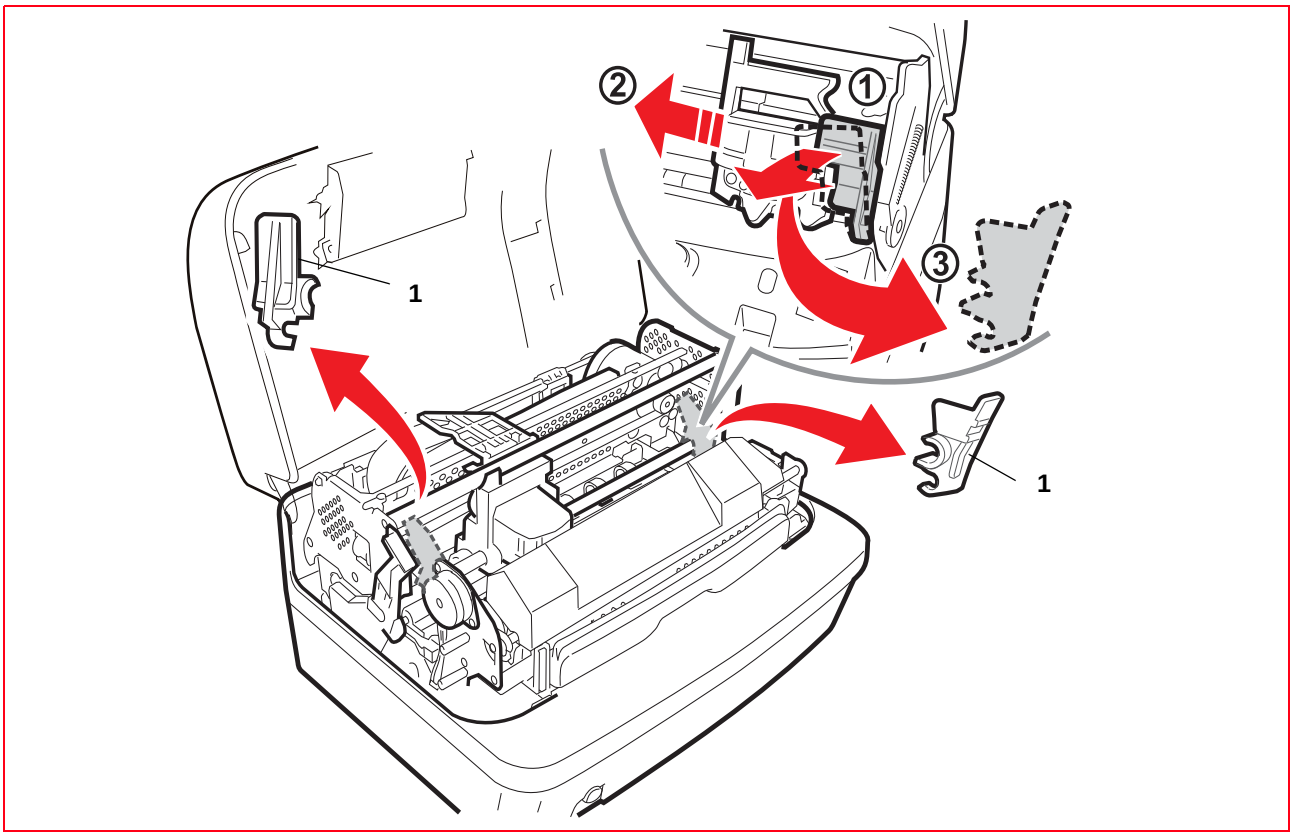
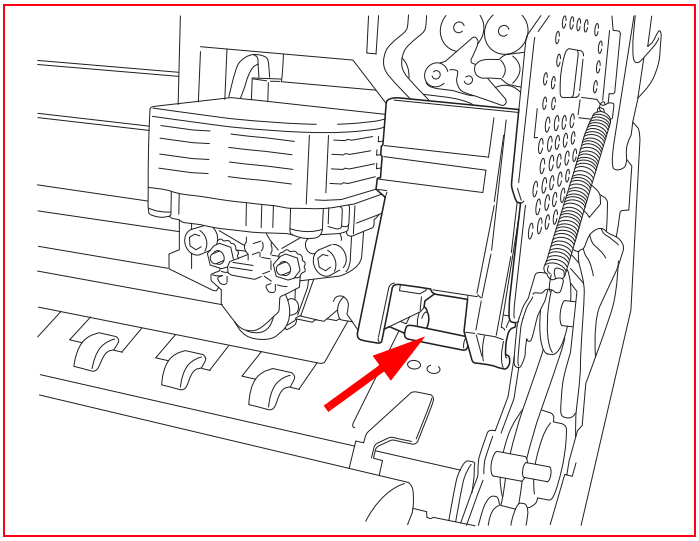


Figure 2 - 6 Removing the blocking devices inserted for transportation

WARNING: when removing the red plastic bracket on the right, be very careful not to damage the component indicated in the figure.



NOTE: bear in mind that before shipping or transporting the printer, you must always reinsert the blocking devices. Refer to the section “Reinserting the transportation blocking devices” on page 2 - 9.

Installing the ribbon cartridge

8. Take the ribbon cartridge and unhook the ribbon guide **(1)** pushing it to the back as illustrated in the following figure.

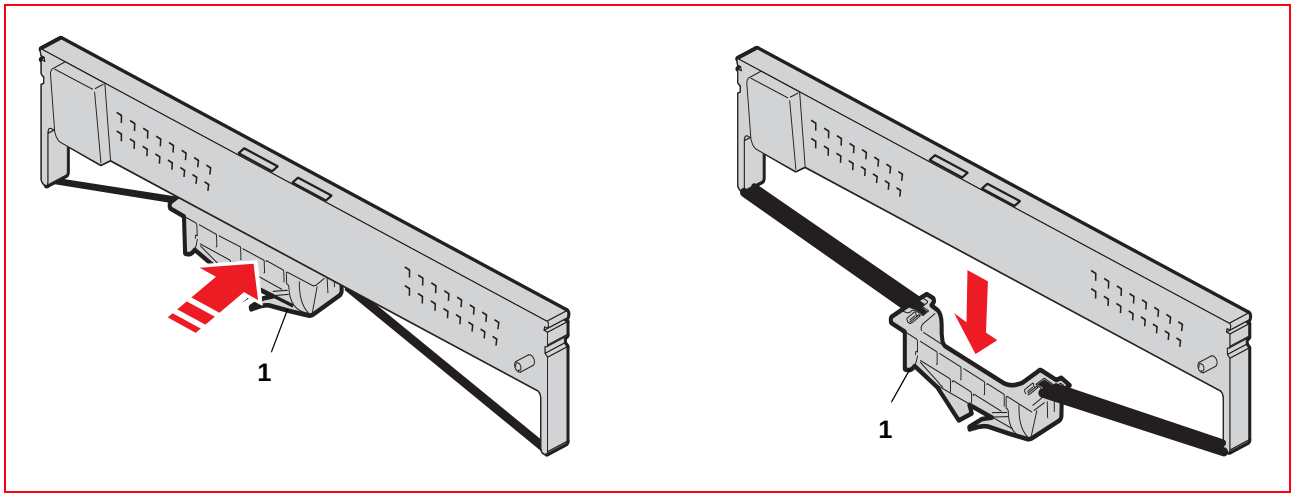


Figure 2 - 7 Unhooking the ribbon guide

9. Move the printhead manually to the centre of the printer.

10. Insert the cartridge into the driving mechanism, fitting it laterally onto the two sides.

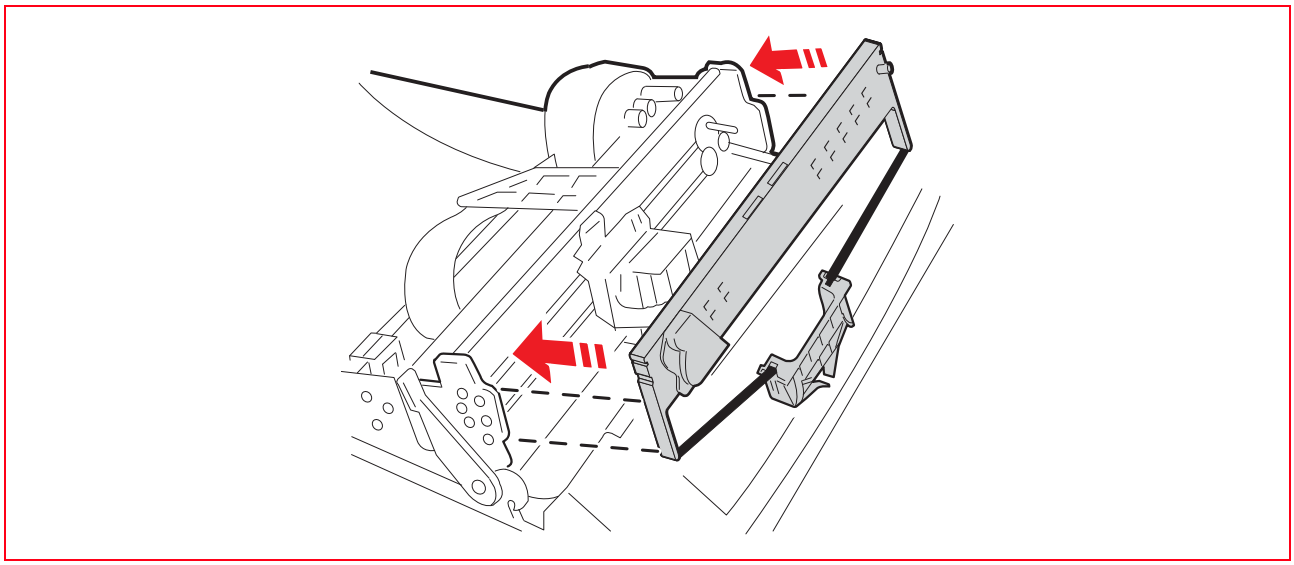


Figure 2 - 8 Fitting the ribbon cartridge

11. Insert the ribbon guide **(2)** from the front and then lift it so as to fasten it on the two flexible pins in the open slots **(3)** of the cartridge **(1)** on the back of the print roller (a "click" is heard).

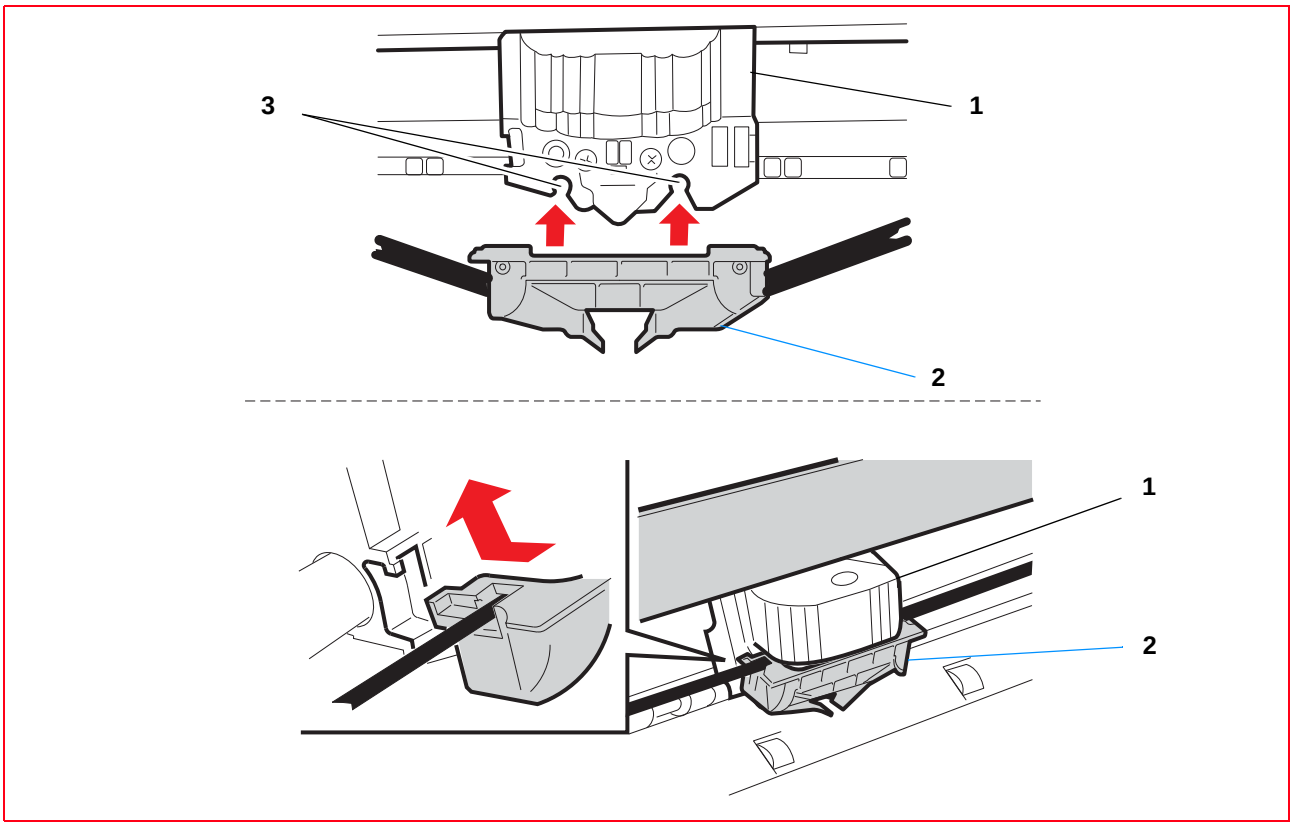


Figure 2 - 9 Attaching the ribbon guide

12. Turn the knob **(1)** of the cartridge in an anticlockwise directionuntil the ribbon is taut and then remove the tab **(2)**.

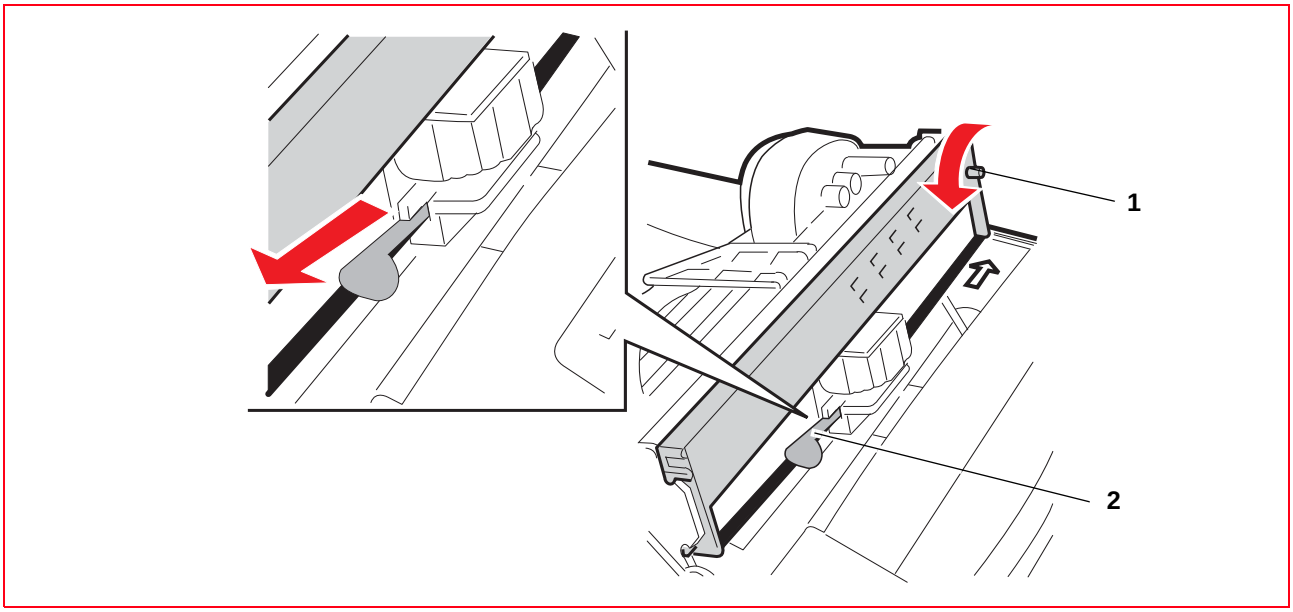


Figure 2 - 10 Ribbon tightening and tab removal

13. Using the specific lever, completely lower the internal upper unit containing the printhead and ribbon cartridge.

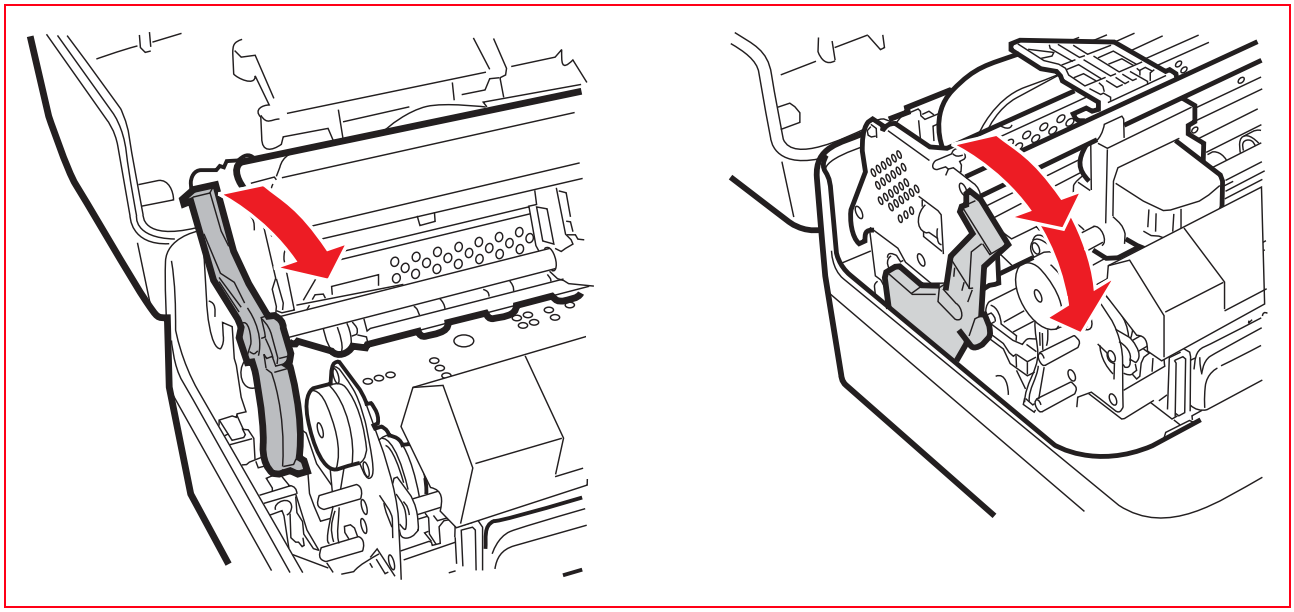


Figure 2 - 11 Lever for lowering the upper mechanical assembly

14. Close the cover of the printer.

Reinserting the transportation blocking devices

1. If present, remove the ribbon cartridge. Refer to section “REPLACING THE RIBBON CARTRIDGE” on page 3 - 8.
2. Actioning the lever, lower fully the upper part of the printer. Refer to the previous figure.
3. Remount the two red plastic stop brackets for transportation.

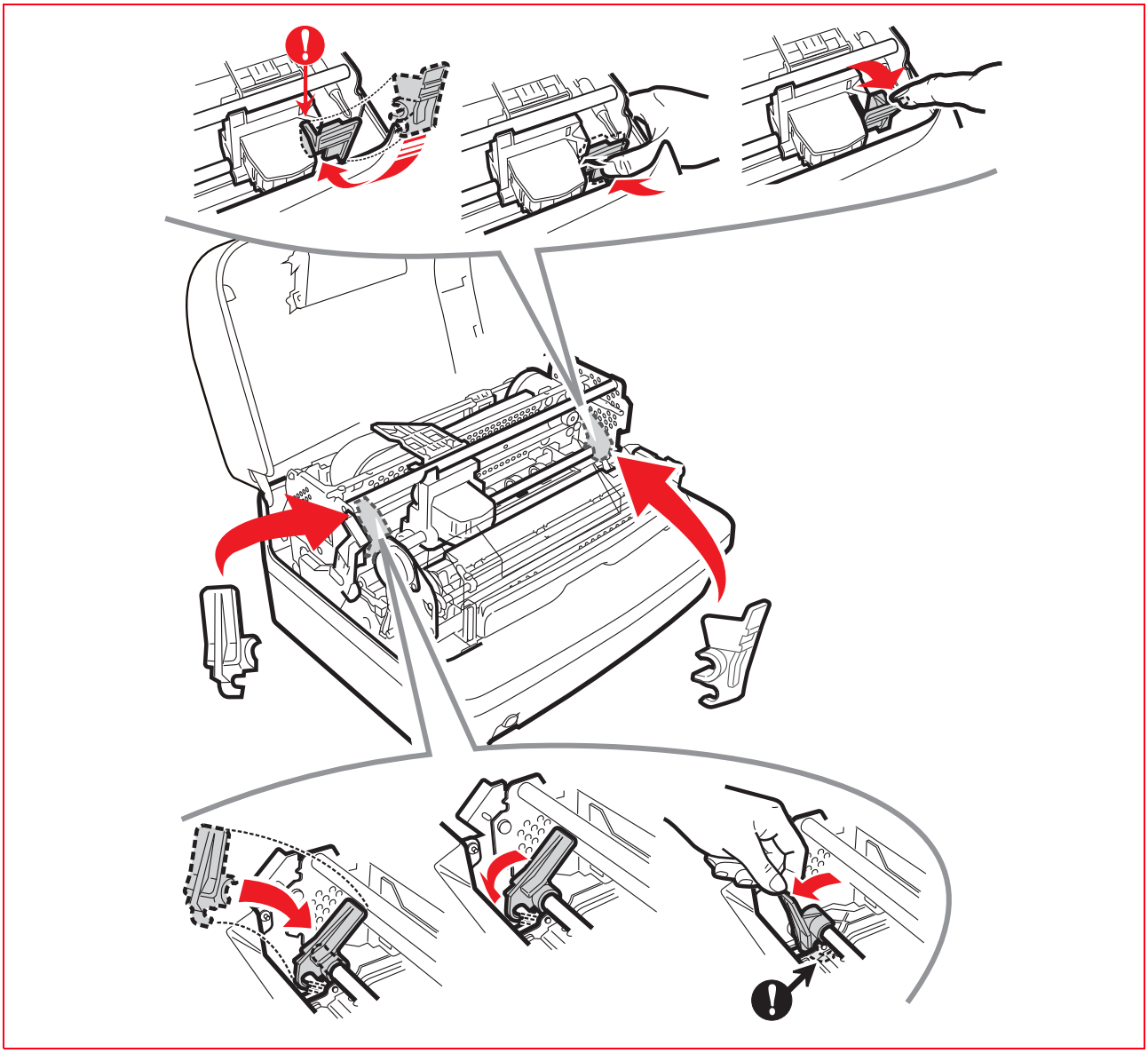


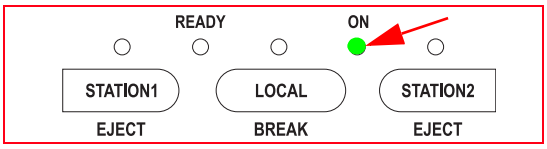
Figure 2 - 12 Reassembling the blocking devices for transportation

4. Put back into position the two foam paddings and the card. Refer to the Figure 2 - 3.
5. Close again the upper cover of the printer.

Installing the printer

WARNING: make sure that the voltage indicated on the data plate matches that of the local power supply.

1. Position the machine where it is to be used, checking compliance with the indications provided in section “GENERAL INFORMATION FOR INSTALLATION” on page 2 - 1.
2. Connect the mains cable and switch on the printer.
3. Check power-on through the mechanism reset phase and lighting up of the ON led on the console.
4. If other LEDs apart from the ON LED remain on, refer to section “ERROR MESSAGES” on page 5 - 1.



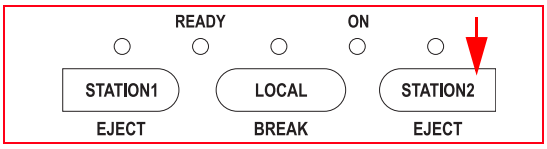
OFF-LINE TEST

A print test can be carried out to check functioning of the printer before connecting it to the system.

Activating and deactivating the print test

To activate the test, proceed as follows:

1. Switch off the printer.
2. Switch on the printer holding down the **STATION 2** key of the console.
3. At the end of the initialization phase, insert an A4 sheet in the introduction slot until the paper alignment photosensor is activated.



4. The machine automatically feeds the sheet and prints the test. The sheet is ejected automatically at the end of the test. To repeat printing, simply insert a new sheet.

The print test provides the following information:

- ·The release and version of the firmware.
- The presence and type of scanner installed.
- The presence and type of magnetic options used.
- A visual check of the operation of the 24 printhead needles.
- The parameter settings for the emulations used.
- The configuration parameters currently programmed for the printer.

Visually checking the writing allows also an evaluation of the printing quality.

An example of the information returned by the test is provided on the next page. The contents of the test depend on the FW release installed on the printer.

Disactivating the test

To de-activate the test, switch off the printer.

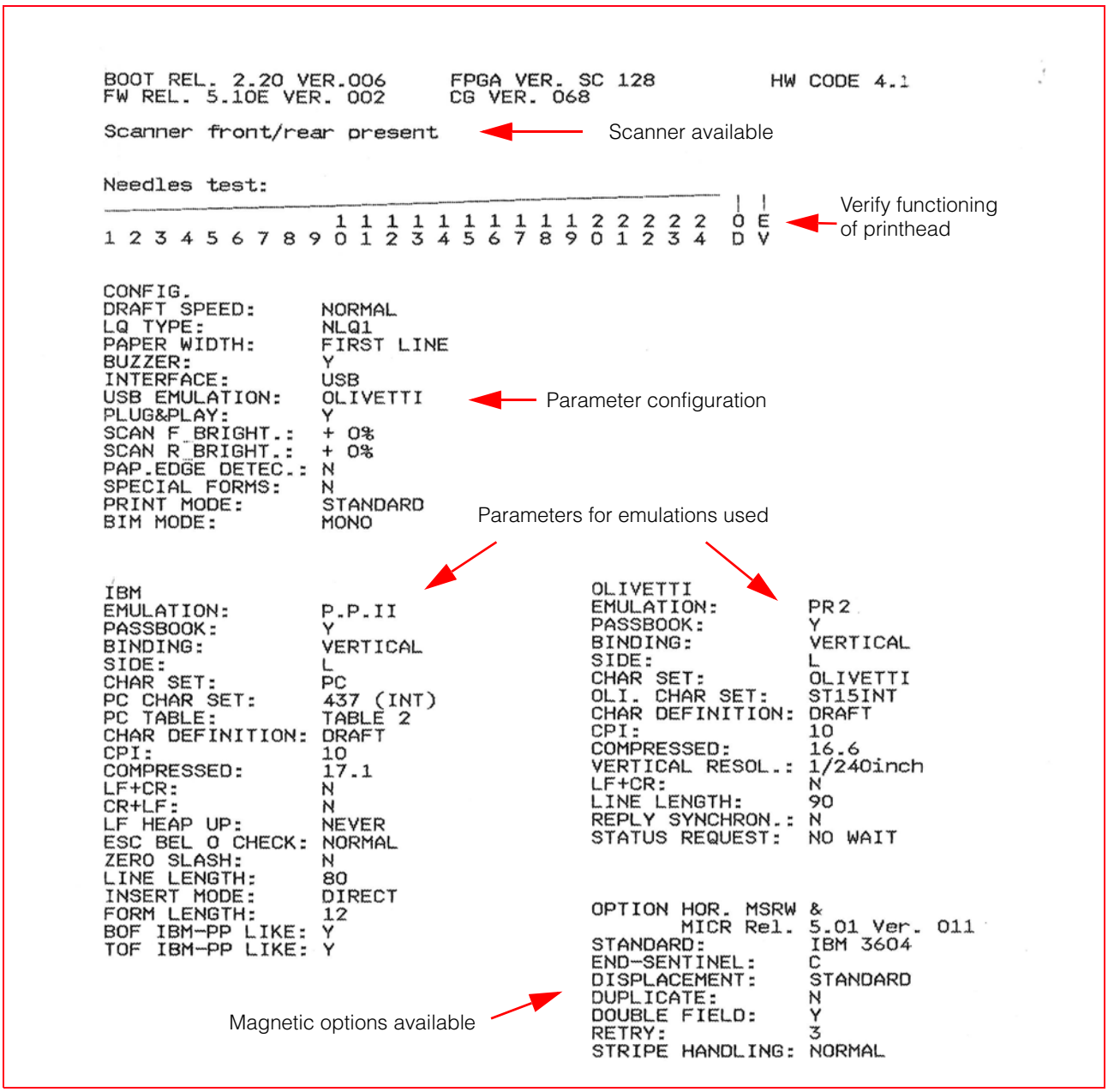


Figure 2 - 13 Example of printing test for printer with PR2 Plus CS scanner.

NOTE: the previous figure provides only an example of a printing test. The software versions shown and the exact data printed varies according to the model used.

NOTE: the printer can be connected to the system using the serial interface, the parallel interface, the USB port, or a combination of these. Using the configuration procedure, it is also possible to activate the "Autoswitching" function, that is, the automatic recognition and connection of the printer that becomes active first with the port. Refer to the section “Description of configuration parameters” on page 4 - 6.

RS 232C serial interface (standard)

1. Connect the serial cable to the connector on the back of the machine.

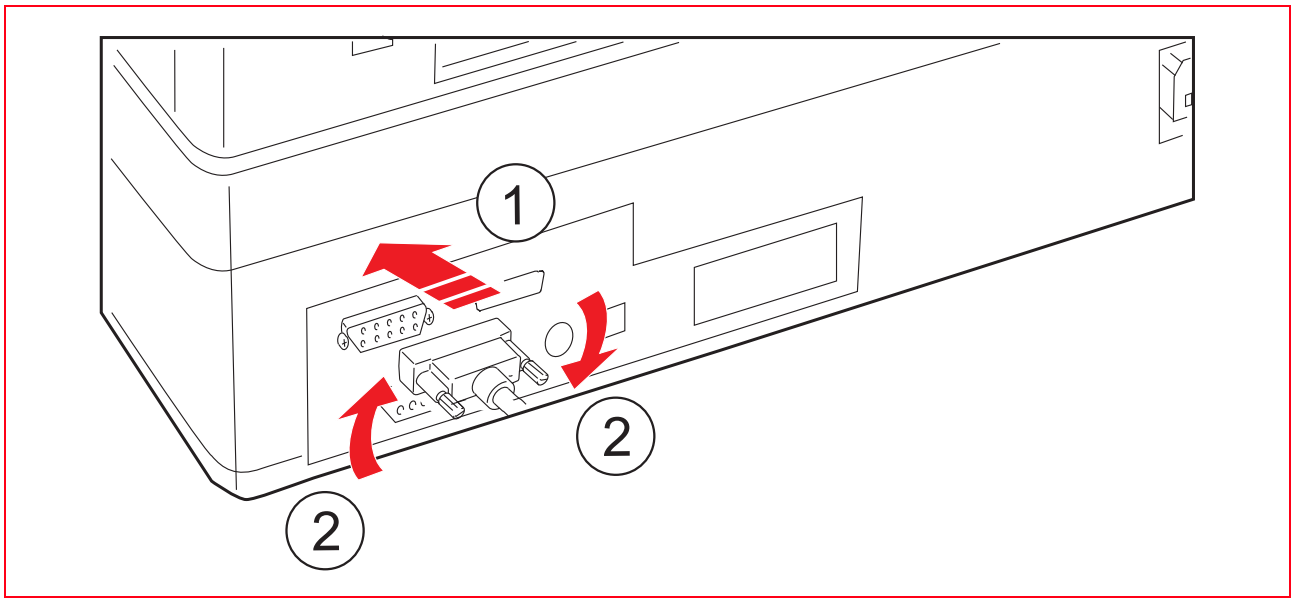


Figure 2 - 14 Connector for serial interface

2. From Set-up, program the following interface parameters: SERIAL 1; BAUD RATE; BIT/CHAR; PARITY; STOP BIT; DSR e DCD (refer to section “CONFIGURING THE OPERATION PARAMETERS” on page 4 - 1).

Parallel interface ieee 1284

The parallel interface requires a 36-wire Centronics connector for the connection.

1. Connect the parallel cable to the connector located at the rear of the printer.

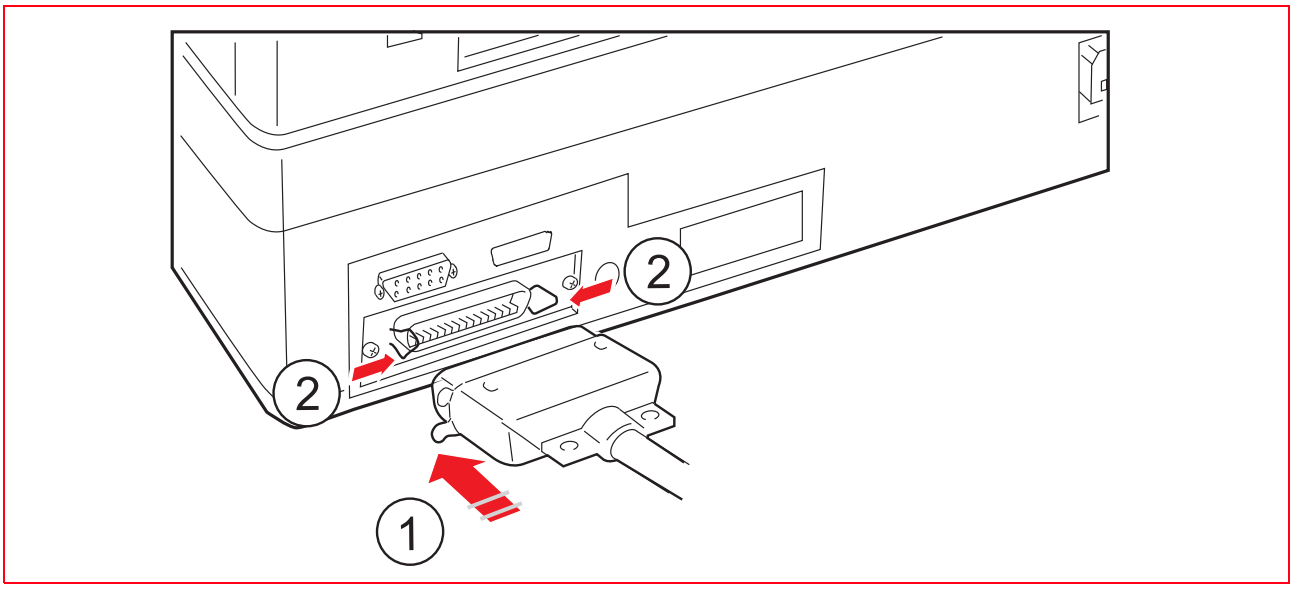


Figure 2 - 15 Connector for parallel interface

2. From Set-up, program the following interface parameters: PARALLEL; STROBE ACTIVE (refer to section “CONFIGURING THE OPERATION PARAMETERS” on page 4 - 1).

USB Interface

1. Connect the USB cable to the connector located at the rear of the printer.

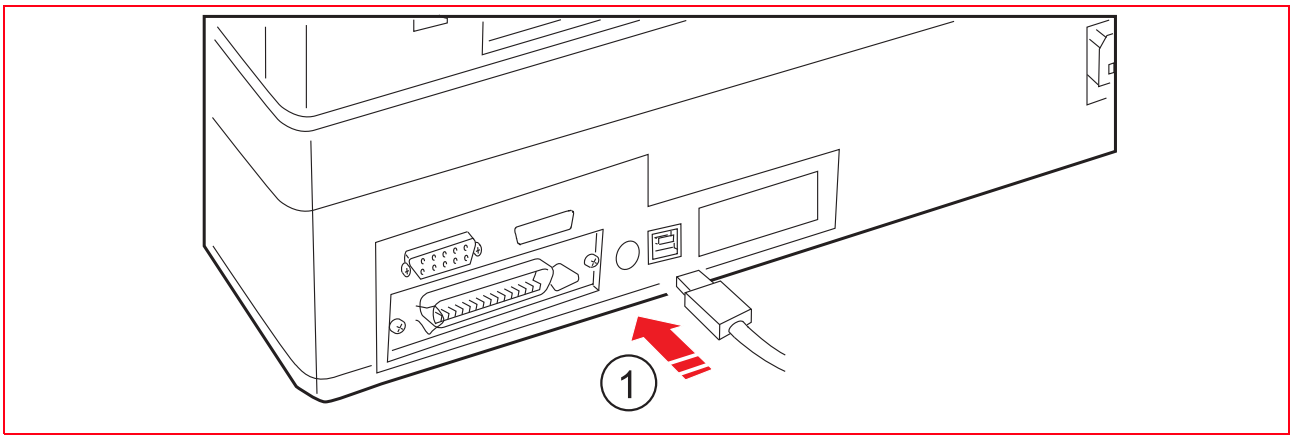


Figure 2 - 16 Connector for USB interface

2. From Set-up, program the following interface parameters: USB (refer to section “CONFIGURING THE OPERATION PARAMETERS” on page 4 - 1).

FINAL TESTING WITH PRINTER CONNECTED TO SYSTEM (ONLINE)

After verifying that the configuration parameters are correct, connect the printer to the system and activate the test for all the functions present in the printer configuration.

OPERATOR INFORMATION

At the end of installation, the field engineer must provide the Operator with various information in order to use the machine and to replace the cartridge and to eliminate paper jams without any problems.

For this purpose, a practical demonstration of the following operations is recommended:

- Use of the console, interpretation of the error messages and, where possible, unblocking of the machine. Refer to section “OPERATING CONTROLS” on page 3 - 1.
- Explain the method of insertion of the paper
- Replacement of the ribbon cartridge.
- Extraction of a jammed document from the machine using the mechanism lift lever.

Stress the importance of correct internal ventilation and that the various ventilation slots of the printer must not be blocked by forms or documents.

Remind the operator that correct use of the machine guarantees optimal functioning in time. If faults occur, contact technical support immediately.

Chapter 3 - OPERATING THE PRINTER

This chapter examines all the commands for operating the printer, operations for inserting the forms or documents to be printed, and some maintenance procedures that can be carried out without the use of instruments or tools.

OPERATING CONTROLS

The machine has the following operating controls:

1 On/off switch.
2 Console with three keys and five LED.
3 Lever for lifting the upper part of the mechanism.

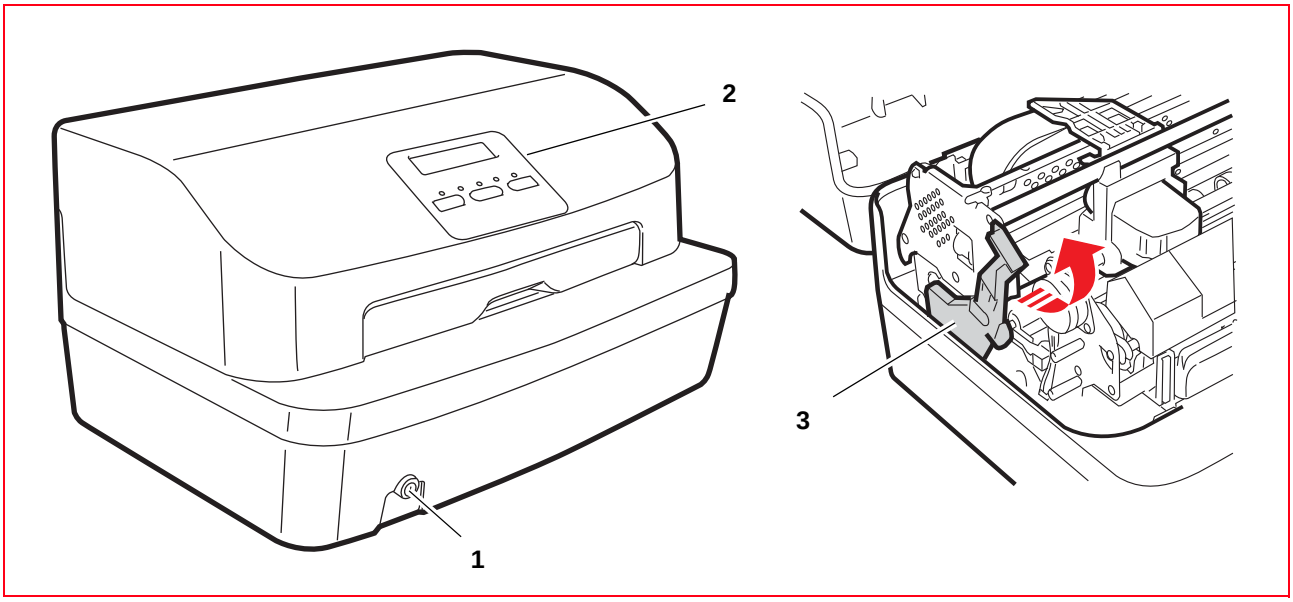


Figure 3 - 1 Operating controls

ON/OFF switch

The on/off switch of the machine is of the two-position type. The switch is operated by a mechanism that runs cross the machine in a lengthwise direction.

Console keys and LEDs

The console of the machine includes five LEDs and three keys.

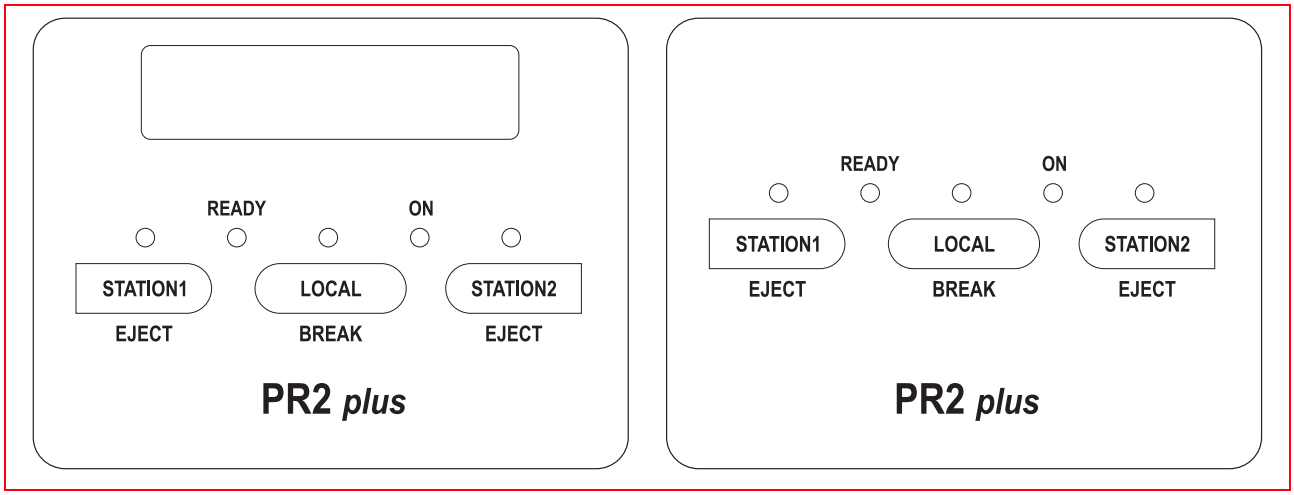


Figure 3 - 2 Console

WARNING: the meaning of the keys and LEDs on the console varies according to the emulation configured for the printer, as indicated in the following tables.

Emulation	*Keys*	*Meaning*
Olivetti Standard	STATION1 / EJECT	• Books operator 1 • Ejects the document of operator 1
	STATION2 / EJECT	• Books operator 2 • Ejects the document of operator 2
	LOCAL / BREAK	Switches the printer between on-line and off-line status
IBM 9068 (4722)	STATION1 / EJECT	Assigns the printer to operator 1
	STATION2 / EJECT	Assigns the printer to operator 2
	LOCAL / BREAK	Switches the printer between on-line and off-line status
SNI 4915 (4904)	STATION1 / EJECT	• Assigns the printer to operator 1 • Ejects the document of operator 1
	STATION2 / EJECT	• Assigns the printer to operator 2 • Ejects the document of operator 2
	LOCAL / BREAK	Switches the printer between on-line and off-line status
IBM PROPRINTER II/X24 - EPSON LQ 2550	STATION1 / EJECT	Ejects the document present
	STATION2 / EJECT	Not used
	LOCAL / BREAK	Switches the printer between on-line and off-line status

Emulation	*LED*	*Status*	*Meaning*
Olivetti Standard	**ON**	ON	Printer on
	READY	ON	Printer on line
	LOCAL	ON	Machine in LOCAL mode (off-line)
	STATION 1	ON	Waiting for document from operator 1
		Flashing	Waiting for document from operator 1
	STATION 2	ON	Waiting for document from operator 2
		Flashing	Waiting for document from operator 2
IBM 9068 (4722)	**ON**	ON	Printer on
	READY	ON	Printer online with a document present
	LOCAL	ON	Machine in LOCAL mode (off-line)
	STATION 1	ON	Machine assigned to operator 1
	STATION 2	ON	Machine assigned to operator 2
SNI 4915 (4904)	**ON**	ON	Printer on
	READY	ON	Printer on-line
	LOCAL	ON	Machine in LOCAL mode (off-line)
	STATION 1	ON	Document present in the printer
		Flashing	Waiting for document from operator 1
	STATION 2	ON	Document present in the printer
		Flashing	Waiting for document from operator 2
BM PROPRINTER II/ X24 - EPSON LQ 2550	**ON**	ON	Printer on
	READY	ON	Printer on-line
	LOCAL	ON	Machine in LOCAL mode (off-line)
	STATION 1	ON	Document present in the printer
		Flashing	Data is present in the printer buffer
	STATION 2	No signal	

NOTE: the ON LED is always illuminated when the printer is powered on, however if any of the other 4 LEDs lights while the printer is on, it indicates an anomalous situation. Refer to section “ERROR MESSAGES” on page 5 - 1.

Key functions during powering on and resetting phases

During the procedures for configuring the printer, or during calibration (see the chapter “PROGRAMMING AND CALIBRATION” on page 4 - 1) the console keys have different uses with respect to normal operation, which depend on the type of activity in course.

The following table indicates the meaning of the keys when they are pressed with the upper cover of the printer raised, or during the first phases of powering on the printer.

Keys pressed				*Cover*	*Function*
ON			**STATION2**	**Closed**	If the Station 2 key is pressed when the printer is switched on, a printing test is printed reporting the printer configuration.
ON		**STATION1**	**STATION2**	**Closed**	If pressed simultaneously with switching on the printer, the Configuration menu is displayed.
ON		**STATION1**		**Open**	Activates the procedure for removing paper jams. Refer to “PAPER JAM” on page 3 - 11.
ON	**LOCAL**	**STATION1**		**Open**	Printer set up for firmware to be updated in forced online mode (on Flash-EPROM).
ON	**LOCAL**	**STATION1**	**STATION2**	**Open**	Access to the following procedures: • Calibration of the photosensors • Calibration of the photosensors • Setting of LH margin • Measurement of document or passbook length • Calibration of print alignments • Printing of the calibration of the photosensors • Prints the calibration values of the scanner. • Prints the Jitter verification data.
ON	**LOCAL**			**Open**	Cover open signal disabled

Lever for lifting the upper part of the mechanism

The lever used to raise the upper part of the mechanism, positioned on the left-hand side of the machine, makes it possible to lift the mechanism and to access the paper path inside the machine, with the possibility of recovering a jammed document without having to switch off the printer. Refer to section “REPLACING THE RIBBON CARTRIDGE” on page 3 - 8.

1. To access the lever, lift the cover of the machine rotating this to its stop position.

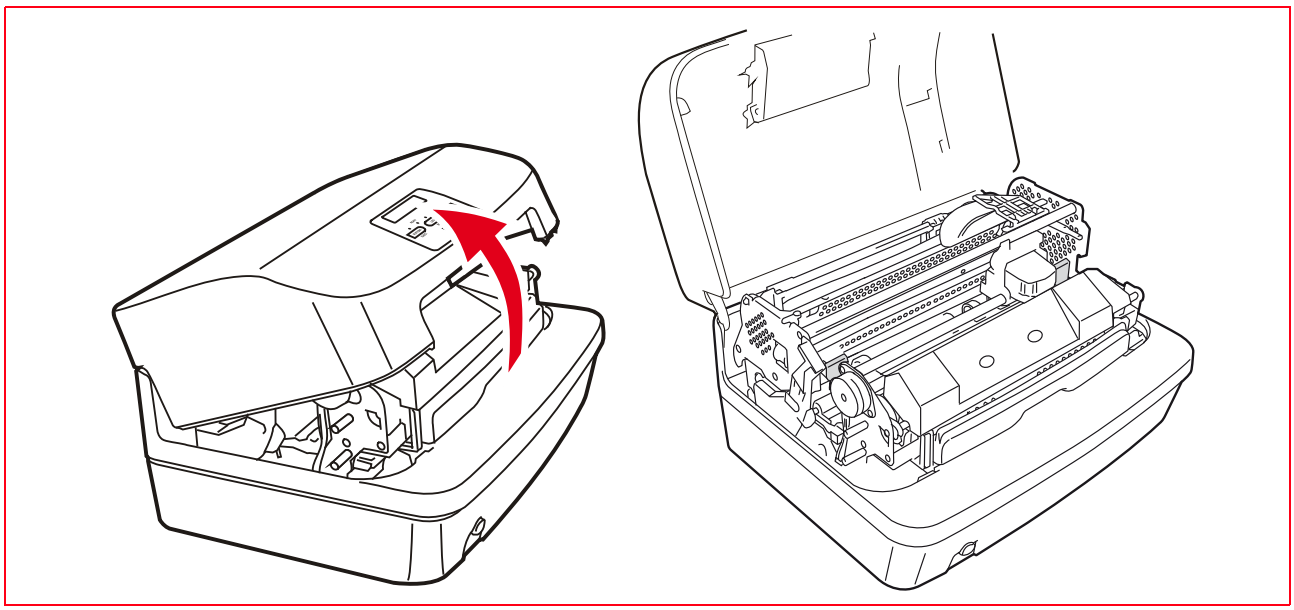


Figure 3 - 3 Opening the cover

2. Bringing the lever to its end of stroke position lifts the upper part of the mechanism, permitting access to the document feed zone.

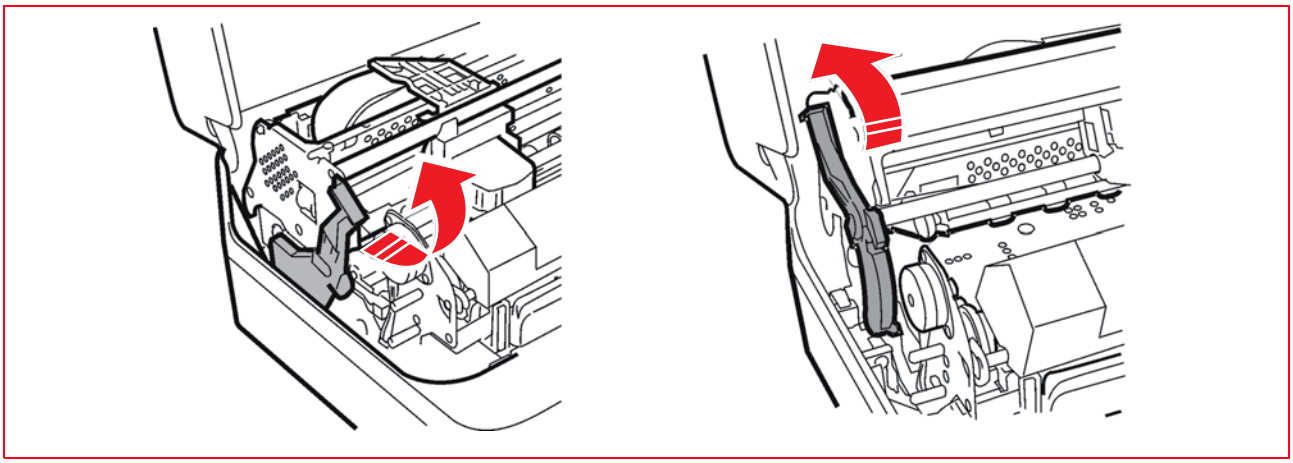


Figure 3 - 4 Lever for lifting the upper part of the mechanism

OPERATING PROCEDURE FOR INSERTING THE DOCUMENTS TO BE PRINTED

Inserting the document with automatic alignment

The resting surface of the casing facilitates introduction of documents in the machine.

1. With the printer on, place the document at the center of the front slot and insert it in the feed slot.
2. Release the document as soon as the automatic alignment system is activated.

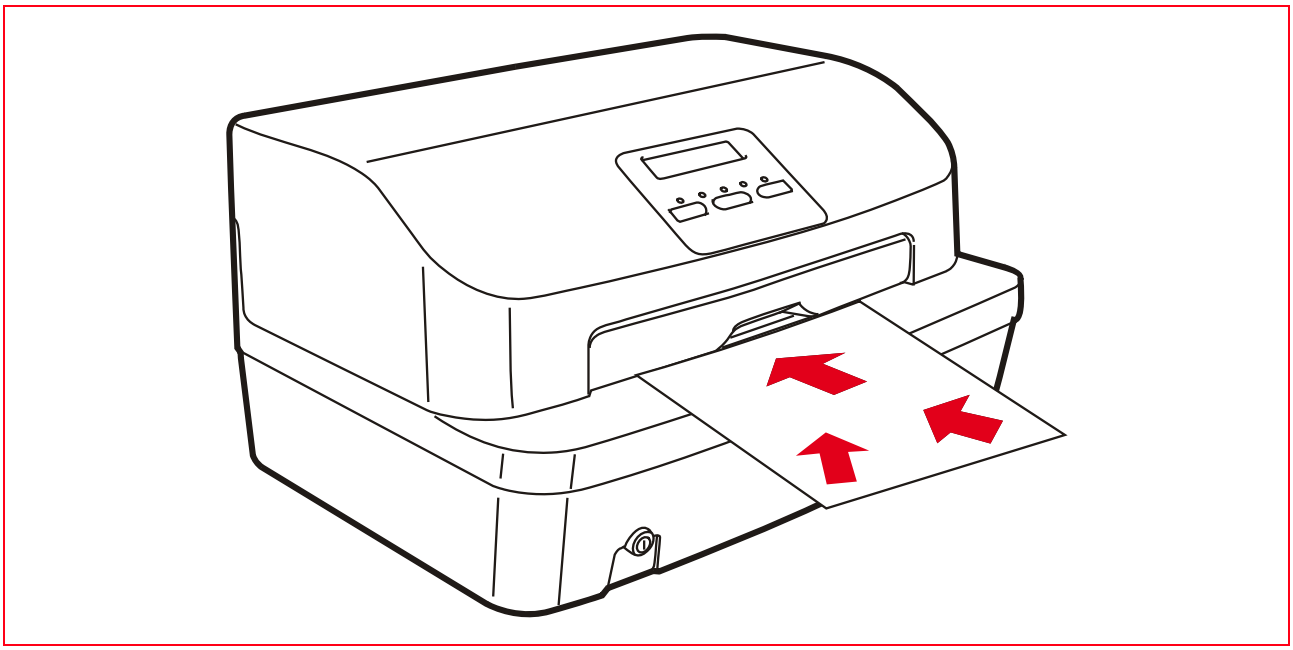


Figure 3 - 5 Automatic introduction of the document

Inserting the passbook

Before inserting a passbook, fold this along the back until it remains completely opened in a horizontal position and check for any creased or torn pages in order to avoid poor quality printing and wrinkling of the pages during introduction.

The passbook must be placed open on the supporting surface with the magnetic stripe facing down.

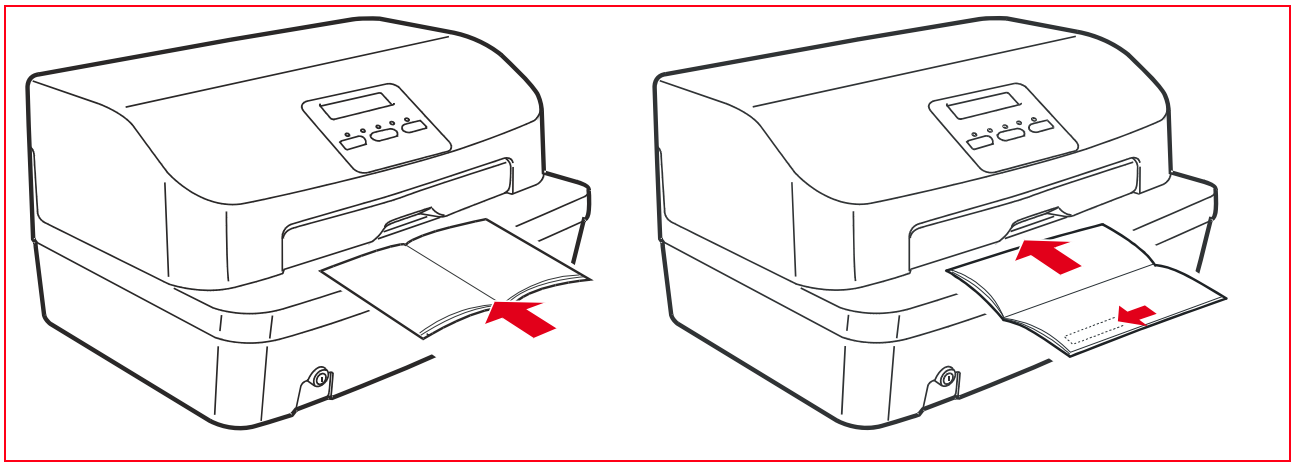


Figure 3 - 6 Manual introduction of the passbook

Inserting a document for horizontal magn./ MICR reading

A reference stripe for insertion of the check is provided on the front part of the cover.

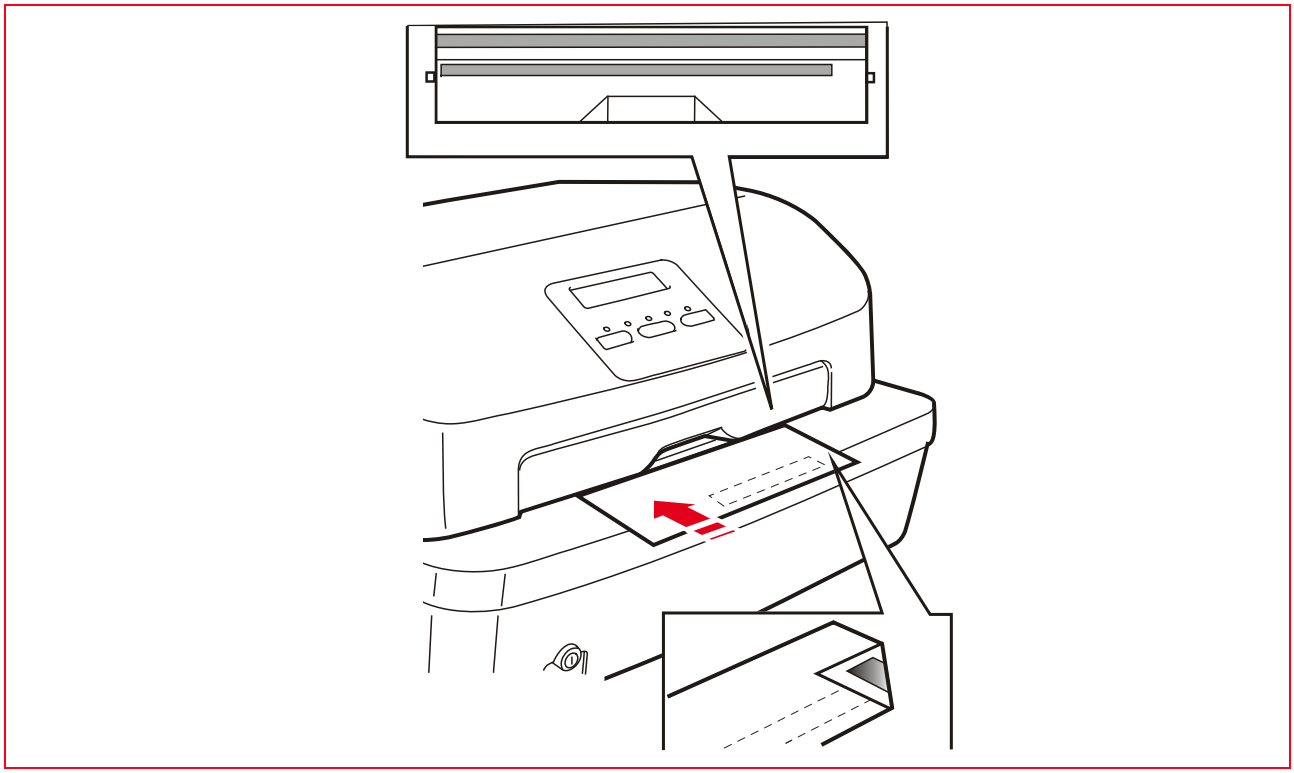


Figure 3 - 7 References for check insertion for horizontal magn./ MICR reading

Ejection of documents

According to the application program, documents may be ejected as follows:

- Returning these to where they were introduced manually (feed slot).
  The documents ejected from the front feed slot:
  - If less than 100 mm in length, are abandoned by the drive rollers
  - If they are 100 mm or more long, they remain grasped by the last pair of rollers so that sheet does not slip off the front resting surface.
- From the rear slot of the machine, starting from the front feed slot.

NOTE: if the document processed is not output by the printer, consult the section, refer to section “PAPER JAM” on page 3 - 11.

REPLACING THE RIBBON CARTRIDGE

WARNING: the ribbon cartridge must be replaced when printing is faded or incomplete, or in the case of frequent optical reading errors of printed documents. This procedure must be carried out with the machine off.

1. Switch off the printer.
2. Open the upper cover of the printer, lifting it up.
3. Actioning the lever, raise the upper part of the printer mechanical assembly to access the printhead. Refer to section “Lever for lifting the upper part of the mechanism” on page 3 - 4.
4. Move the printhead manually to the centre of the carriage.

WARNING: the printhead could be very hot, therefore be very careful when handling it. Only touch the parts in plastic.

5. Push the ribbon guide **(2)** down until it is released from the print cartridge **(1)**.

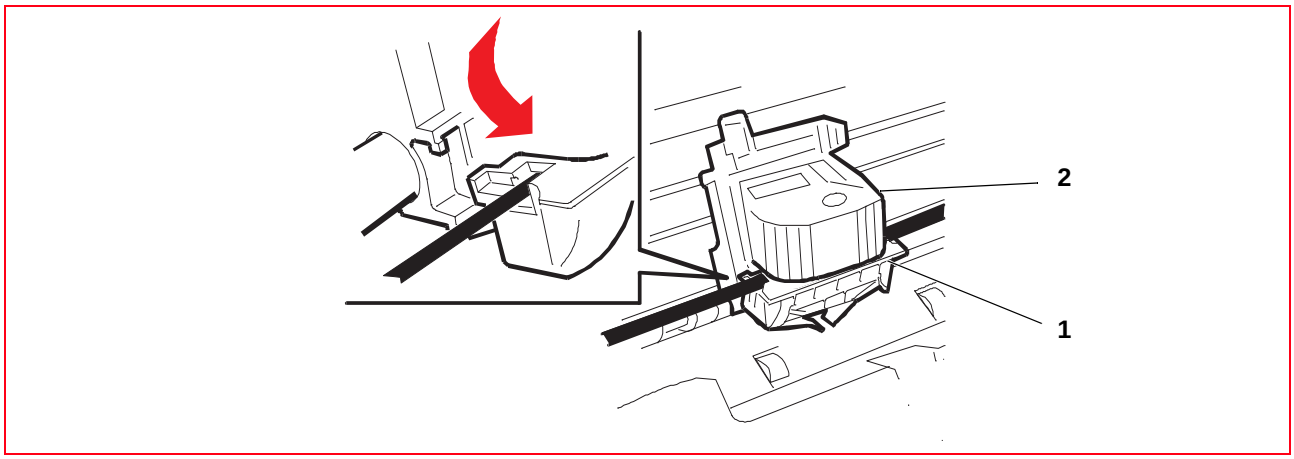


Figure 3 - 8 Unhooking the ribbon guide

6. Remove the old cartridge, pulling it outwards.

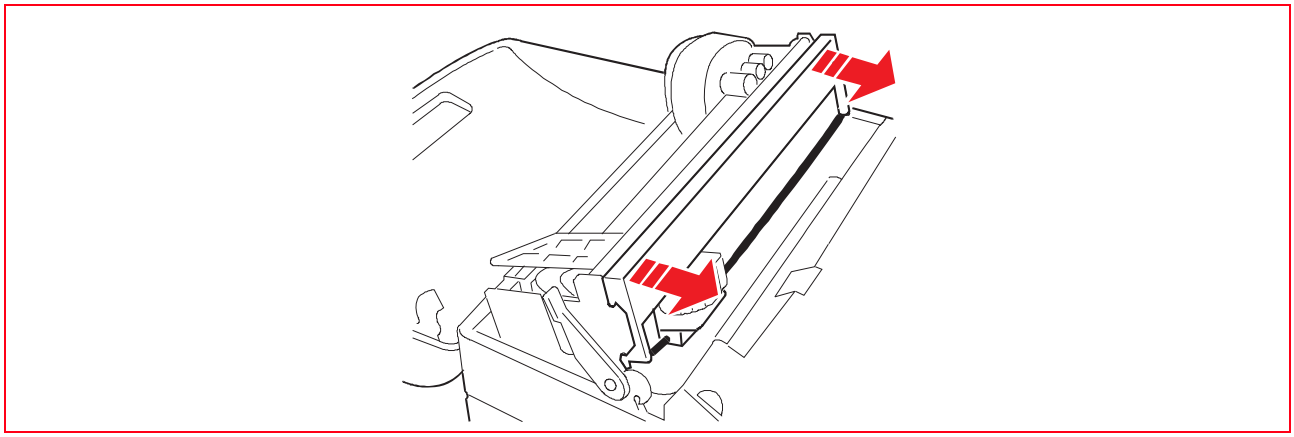


Figure 3 - 9 Removing the ribbon cartridge

7. Extract the new cartridge from its container and unhook the ribbon guide **(1)**, pushing it to the back as illustrated in the following figure.

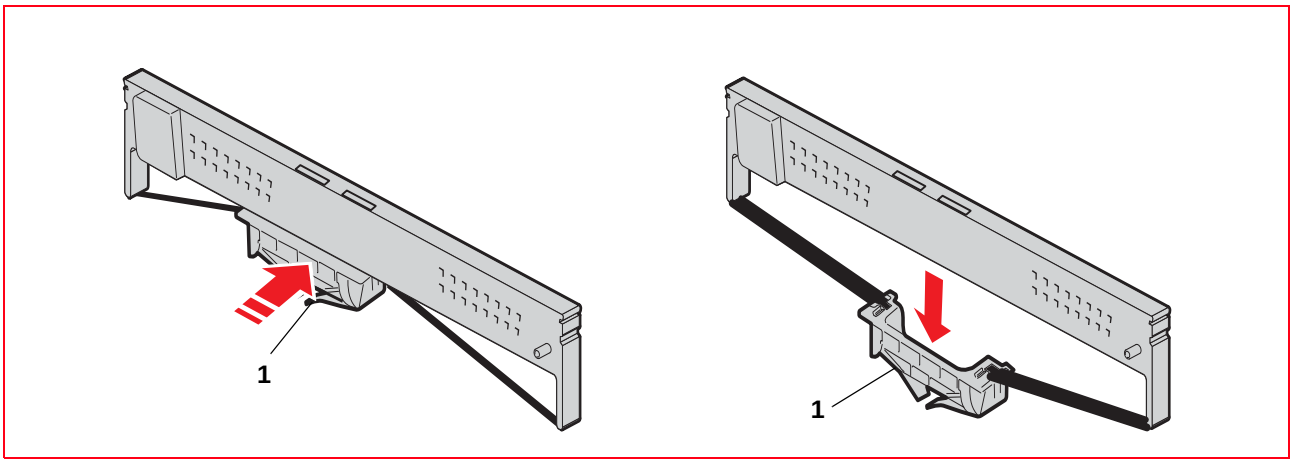


Figure 3 - 10 Unhooking the ribbon guide

8. Insert the new cartridge onto the feed pins, fitting it laterally onto the two sides.

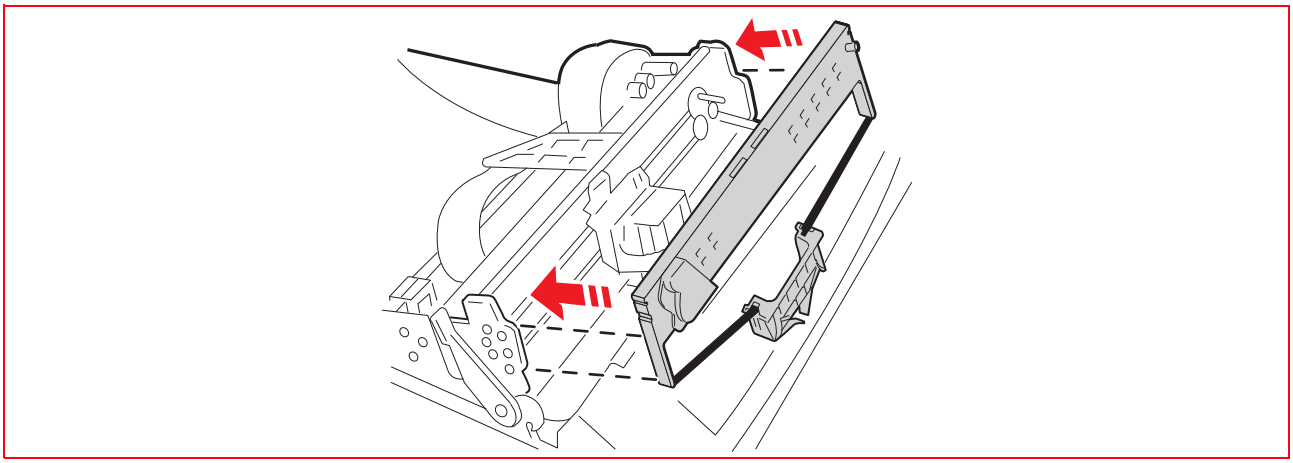


Figure 3 - 11 Attaching the cartridge to the structure

9. Insert the ribbon guide **(1)** from the front, moving it upwards and applying sufficient force to fasten it onto the two flexible pins in the open slots **(3)** of the carriage **(2)**, at the back of the printhead roller (a click is heard).

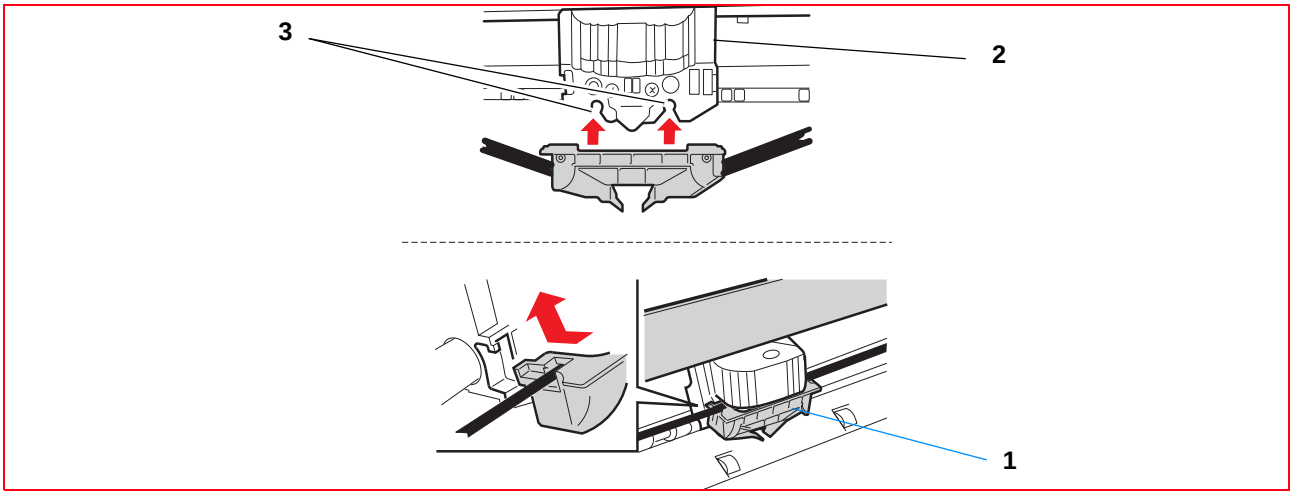


Figure 3 - 12 Fitting the ribbon guide\

10. Turn the knob **(1)** of the cartridge in an anti-clockwise direction until the ribbon is taut, then remove the tab **(2)**.

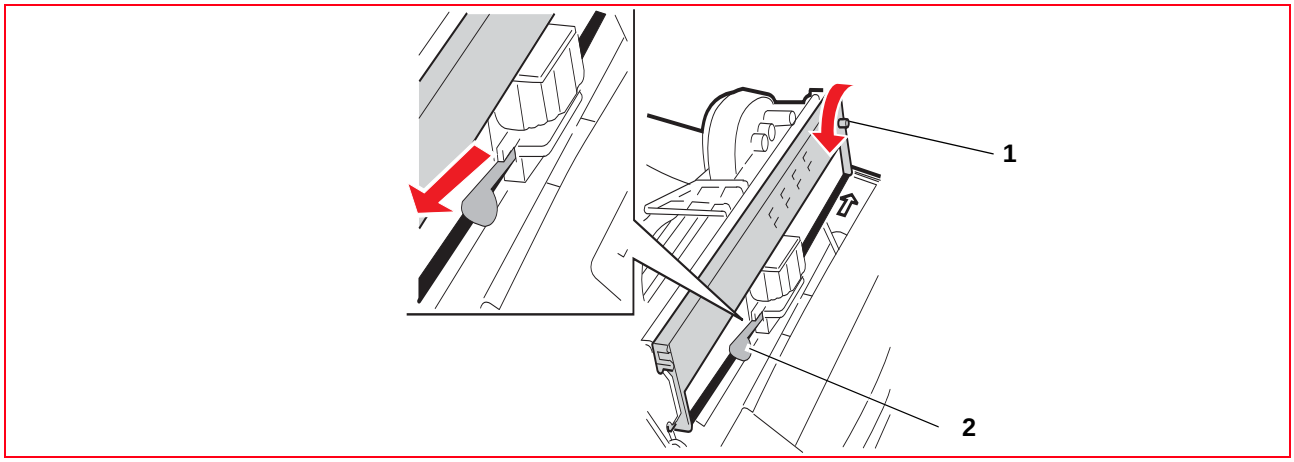


Figure 3 - 13 Tightening the ribbon and removing the tab

11. Actioning the lever, lower fully the upper part of the printer.

12. Close again the cover of the printer.

PAPER JAM

The paper may jam along the path inside the machine. Jamming may be caused by:

- Paper path obstructed (scraps of paper, for example)
- Paper fed crosswise
- Weight or format outside permitted limits
- Paper in bad conditions: creased, misshapen or in poor condition
- Paper with metal staples or paper clips (this condition may seriously damage the machine)
- Multicopy forms with incorrectly glued sheets
- Continuous form not correctly tightened on the tractor-feeder.

Possible areas of jamming:

- A area: initial feed area from front feeder
- B area: internal area of the printer
- C area: rear area towards the documents outfeed.

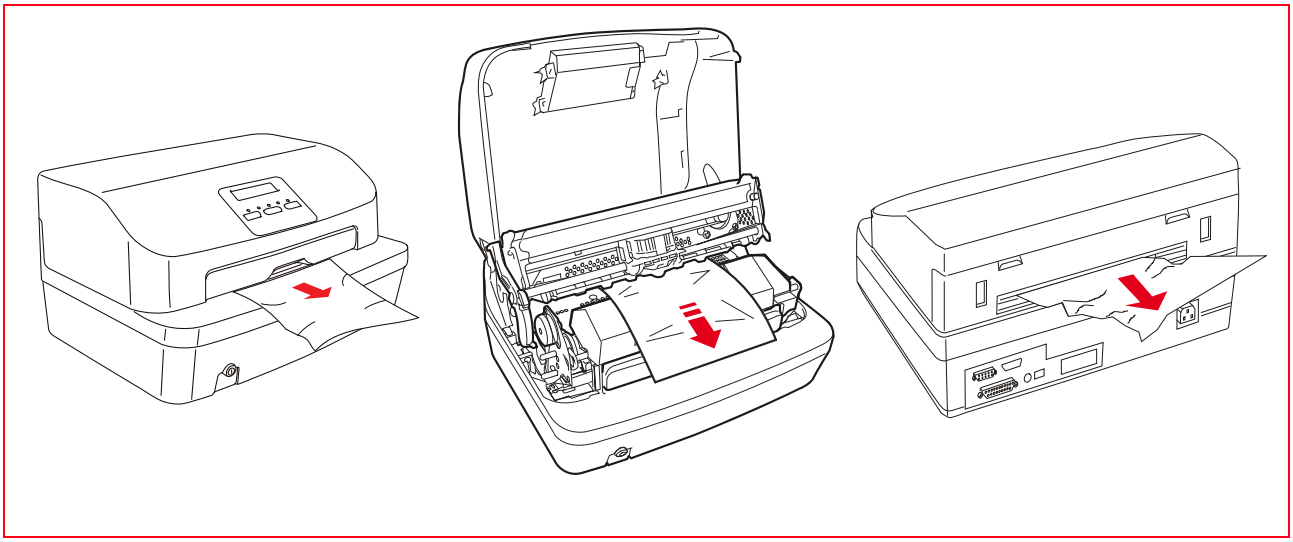


Figure 3 - 14 Possible areas where the paper could get jammed

If a paper jam occurs in any area: **switch off the printer** and remove the paper following the illustrated procedure below.

To remove a document that has jammed from inside the printer, proceed as follows:

1. Switch off the printer.
2. Open the cover and switch on the printer with **STATION 1/EJECT** pressed.
3. Wait for the acoustic signal.
4. Actioning the lever, raise the upper part of the mechanical assembly. Refer to section “Lever for lifting the upper part of the mechanism” on page 3 - 4.

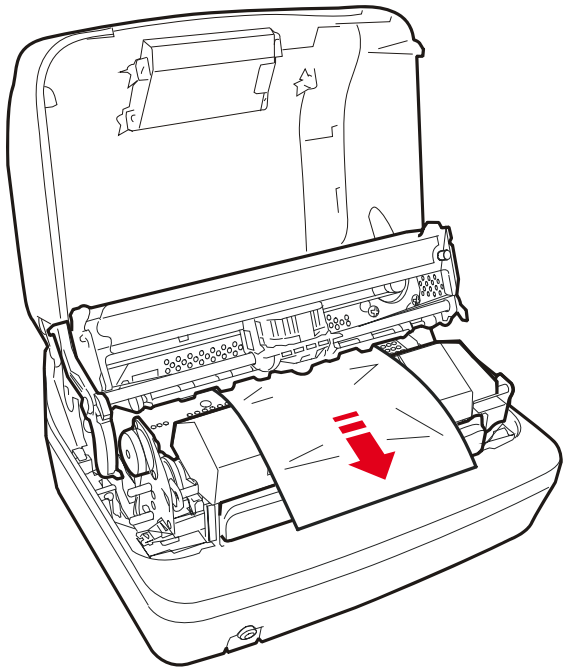


Figure 3 - 15 Removing paper jams

5. Pressing **STATION1 / EJECT** or **STATION2 / EJECT**, the paper will be moved forward and back so that it is possible to remove the scraps of paper that have jammed.
6. Switch off the machine and close the cover before switching the printer on.

Chapter 4 - PROGRAMMING AND CALIBRATION

CONFIGURING THE OPERATION PARAMETERS

NOTE: the set-up environment is reserved for service engineers and programmers as certain parameters that can be selected are used to specialize the machine or the option installed and must not be modified. Incorrect modification by the operator could cause malfunctioning of the printer.

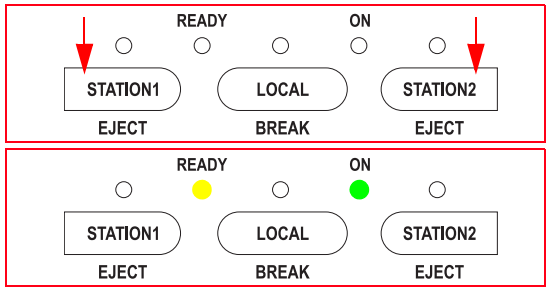
The programming menu is composed of three main menus «CONFIG.», «IBM» and «OLIVETTI», each menu having a series of related parameters.

NOTE: for how to access these sub-menus, refer to the next section. You can move from one sub-menu to another by pressing the **STATION2** key, as described in the following. To change the values associated with the parameters in the sub-menus, refer to the section "Modifying configuration parameters" on page 4 - 2.

Set-up activation

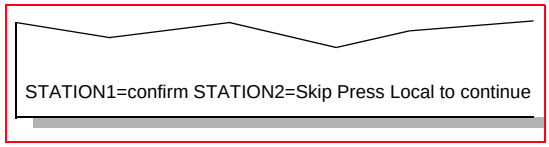
To enter the programming (set-up) menu, follow the procedure below:

1. Switch off the printer.
2. Switch it on again holding down the **STATION1** and **STATION2** keys of the console.

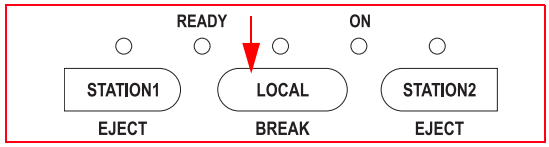


3. When the phase for resetting the printer mechanism completes, check that the **ON** and **Ready** LEDs are illuminated.

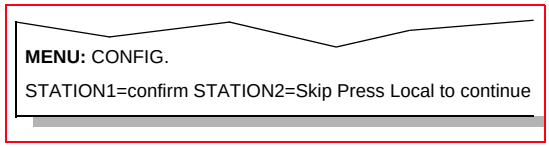
4. Insert an A4 sheet in the front slot.
5. The machine will print the meaning of the keys in this environment on one line.



6. Press the LOCAL key to enter the «**Configuration menu**».

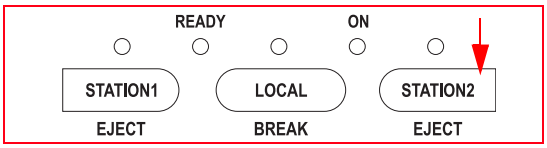


7. The currently active menu is printed: «CONFIG.» or «IBM» or «OLIVETTI», for which you can change its parameters. By default, the first menu activated is the Configuration menu, «CONFIG.».

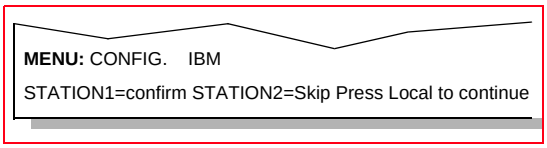


NOTE: every time you press the **STATION2** key you pass to the next menu in succession, in this case «IBM» then «OLIVETTI».

8. To pass to the next menu, press the **STATION2** key.

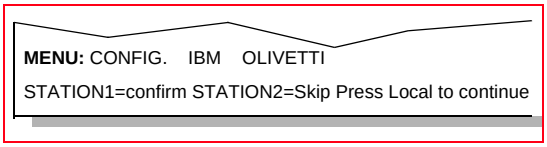


The new menu is printed and you can change the parameters related to the «IBM» emulation.



9. Pressing the **STATION2** key again, you can pass to the third menu.

10. The new menu is printed and you can change the parameters related to the «OLIVETTI» emulation.



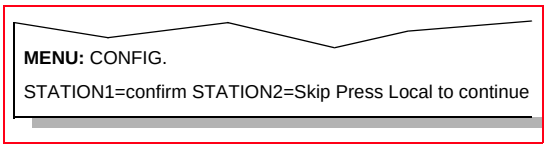
11. These menus operate in a cyclical fashion therefore, when the **STATION2** key is pressed again, you return to the initial menu «CONFIG.».

12. Therefore, select the menu for which you want to change parameters, and proceed to configure them as described in the next section.

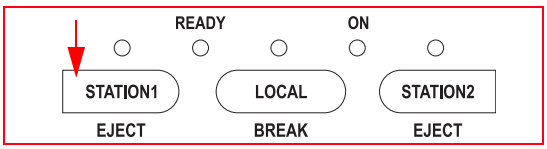
Modifying configuration parameters

NOTE: the procedure below illustrates the steps to follow to change the configuration parameters. In this example, the procedure is described for modifying the fifth parameter «INTERFACE» in the Configuration menu, «CONFIG.». To change the configuration of the other parameters proceed in a similar way.

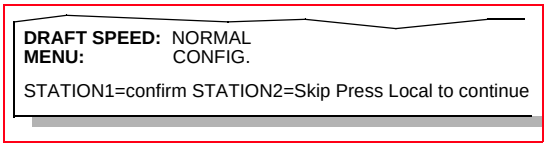
1. Enter the Configuration menu following the procedure described in the previous section. The currently active menu is printed.



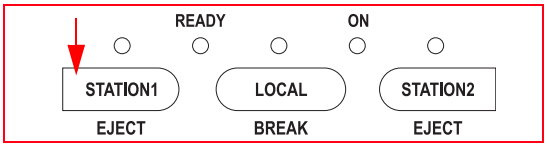
2. Press the **STATION1** key.



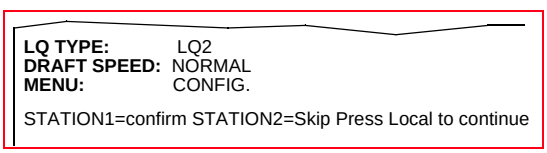
3. The setting for the first configuration parameter is printed.



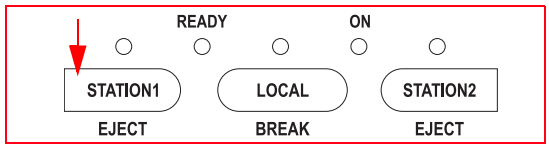
4. Let's imagine that we do not want to change this parameter. Therefore we press the **STATION1** key again to pass to the next parameter.



5. The setting for the second configuration parameter is printed.



6. Also in this case, let's imagine that we do not want to change this parameter. Therefore we press the **STATION1** key again to pass to the next parameter.



NOTE: the **STATION1** key is therefore the key that **confirms the value of the parameter** printed and **allows you to pass to the next parameter**.

7. The setting for the third configuration parameter is printed.

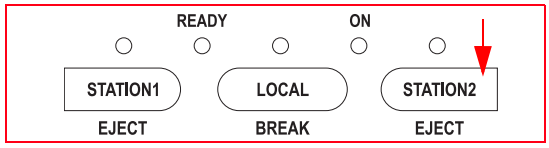
```
PAPER WIDTH:   FIRST LINE
LQ TYPE:       LQ2
DRAFT SPEED:   NORMAL
MENU:          CONFIG.

STATION1=confirm STATION2=Skip Press Local to continue
```

8 Proceed in the same way pressing the **STATION1** key until the setting of the fifth parameter «INTERFACE» is printed that we want to change.

```
INTERFACE:     USB
BUZZER:        Y
PAPER WIDTH:   FIRST LINE
LQ TYPE:       LQ2
DRAFT SPEED:   NORMAL
MENU:          CONFIG.
```

9. This is the parameter value that, for the purposes of our example, we want to change. Press the **STATION2** key to pass to the next value available for the parameter.

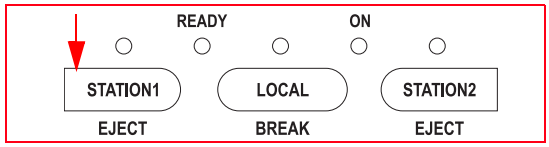


10. The new value for the parameter is printed. For the connection interface, 6 values are possible: «USB», «COM1-USB», «USB-PAR», «PARALLEL», «DUAL-PAR» and «SERIAL1». The values are displayed in a cyclical fashion, therefore by continuing to press the STATION2 key, you can return to the first value again.

```
                SERIAL1
INTERFACE:      USB  COM1-USB  PARALLEL DUAL-PAR
BUZZER:         Y
PAPER WIDTH:    FIRST LINE
LQ TYPE:        LQ2
DRAFT SPEED:    NORMAL
```

NOTE: the **STATION2** key is therefore the key that **allows you to change the value associated with each parameter**. By pressing this key you pass to the next value available, in succession.

11. When you reach the value you want to set for the parameter, press the **STATION1** key to confirm the value and pass to the next parameter.



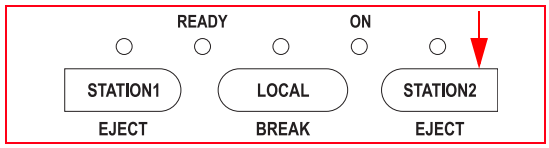
12. The next parameter is printed.

```
RSI EMULATION:  OLIVETTI
                SERIAL1
INTERFACE:      USB  COM1-USB  PARALLEL DUAL-PAR
BUZZER:         Y
PAPER WIDTH:    FIRST LINE
LQ TYPE:        LQ2
```

13. Proceed in the same way, pressing the **STATION1** key for all the parameters in the menu until the option «SAVE PARAMETERS» is printed.

```
SAVE PARAMETERS:  Y
PNS SELECTIONS:   N
BIM MODE:         MONO
PRINT MODE:       STANDARD
SPECIAL FORMS:    N
```

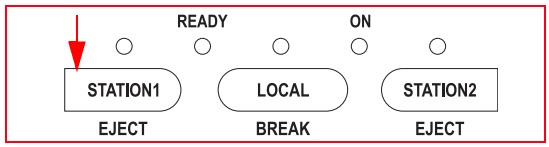
14. To save the new values you have configured for the parameters, press the **STATION2** key to pass from the value «NO» to the value «Y».



15. The value «Y» is printed to confirm that the new configuration values are saved.

```
SAVE PARAMETERS: NO  Y
PNS SELECTIONS:      N
BIM MODE:            MONO
PRINT MODE:          STANDARD
SPECIAL FORMS:       N
```

16. Press the **STATION1** key to save the new configuration.



NOTE: if you do not want to save the new configuration, press the **STATION1** key when the value «SAVE PARAMETERS: NO» is printed.

Procedure to save the value of a single parameter

The procedure illustrated above allows you to scroll through all the parameters of the menu selected, changing the values of the parameters as required.

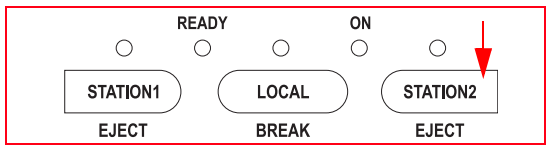
The procedure described below on the other hand allows you to change the value of a single parameter, exiting immediately from the menu at the end without having to scroll through all the other parameters.

NOTE: in this case also, let's imagine that we only want to change the value of the «INTERFACE» parameter in the Configuration menu «CONFIG.».

1 Proceeding as indicated in the previous section, print the setting of the fifth parameter «INTERFACE» that is to be changed.

```
INTERFACE:      USB
BUZZER:           Y
PAPER WIDTH:    FIRST LINE
LQ TYPE:        LQ2
DRAFT SPEED:    NORMAL
MENU:           CONFIG.
```

2. This is the parameter that, in our example, we want to change. Press the **STATION2** key to pass to the next value for the parameter.



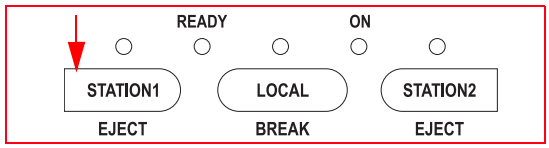
3. The new value for the parameter is printed. For the connection interface, 6 values are possible: «USB», «COM1-USB», «USB-PAR», «PARALLEL», «DUAL-PAR» and «SERIAL1».

```
                  SERIAL1
INTERFACE:  USB  COM1-USB  PARALLEL  DUAL-PAR
BUZZER:           Y
PAPER WIDTH:    FIRST LINE
LQ TYPE:        LQ2
DRAFT SPEED:    NORMAL
```

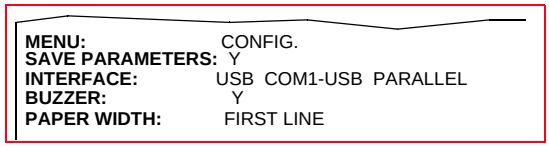
4. When you reach the value for the parameter desired, press the **LOCAL** key to confirm the new value and exit from the menu.

```
SAVE PARAMETERS:  Y
INTERFACE:        USB  COM1-USB  PARALLEL
BUZZER:           Y
PAPER WIDTH:      FIRST LINE
LQ TYPE:          LQ2
```

5. Press the **STATION1** key to save the new configuration.



6. IThe value for the parameter changed is saved and, at the same time, the procedure exits from the «CONFIG.» menu.



The following diagram summarises graphically the procedure for changing the values of the configuration parameters.

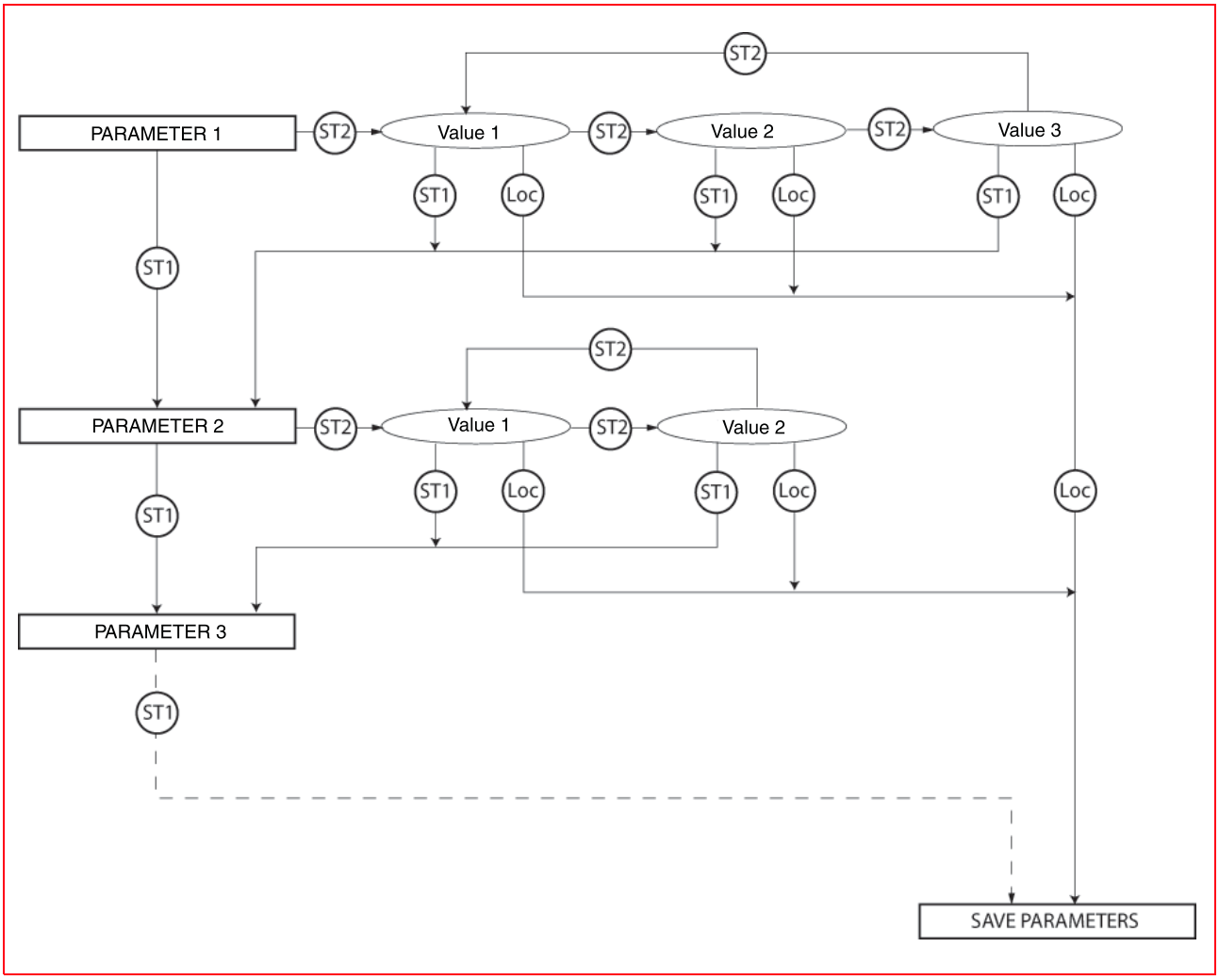


Figure 4 - 1 Diagram indicating the procedure to follow to change the parameter values

Exiting from the Configuration menu

To exit from the Configuration menu, switch off the printer.

Switch on the printer again to eject the sheet.

Description of configuration parameters

In this section the configuration parameters present in the programming menu are listed, with the various values that can be set and their meanings. Values set by default are indicated in bold and highlighted with an asterisk.

Configuration mode menu "MENU: CONFIG." parameters

Parameter	*Values possible*	*Description*
DRAFT SPEED	**NORMAL ***	Normal printing speed 370 cps
	HIGH	High printing speed 510 cps
	VERY HIGH	Very high printing speed 560 cps
LQ TYPE	LQ2	Letter Quality 125 cps
	NL Q1 *	Near Letter Quality type 1 185 cps
	NL Q2	Near Letter Quality type 1 185 cps
PAPER WIDTH	**FIRST LINE ***	The width of the document is measured on the first line printed
	PROGRAMMABLE	The position used for measuring the width of the document can be programmed
BUZZER	NO	Switches the buzzer on
	YES *	Switches the buzzer off
INTERFACE	USB	System connection interface. Depending on the interface selected, the related parameters indicated in the tables below can be configured. See page 4-7
	SERIAL1	See page 4-8
	PARALLEL	See page 4-8
	COM1-USB	See page 4-9
	USB - PAR	See page 4-9
	DUAL-PAR	See page 4-9
SCAN F_BRIGHT	From - 60 % to + 60 % with step from 10 % - default + 0%	
SCAN R_BRIGHT	From - 60 % to + 60 % with step from 10 % - default + 0%	
PAP. EDGE DETEC.	N	
	Y	

Parameter	*Values possible*	*Description*
SPECIAL FORMS	N	
	STD MODE	
	EJE MODE	
	FULL MODE	
	PASSPORT	
PRINT MODE	STANDARD	
	HI-QUALITY	
	HI-SPEED	
BIM MODE	MONO	
	BIDIR.	
PNS SELECTION	N	By selecting (Y) you can access the PNS selection menu.
	Y	
PNS ZEROBOF	N	
	Y	
PNS TOF EXT	N	
	Y	
PNS KEY EJECT	N	
	Y	
PNS KEY INSERT	NEVER	
	IBM EMUL.	
	OLI EMUL.	
	ALL EMUL.	
SAVE PARAMETERS	N	Saves (Y) or cancels (N) the values configured in this area of the programming menu.
	Y *	

If the «INTERFACE» parameter has been configured as USB

Parameter	*Values possible*	*Description*
USB EMULATION	**OLIVETTI***	This parameter is used to set the type of emulation used for the USB port.
	IBM	
PLUG&PLAY	**Y ***	This parameter is used to set the plug and play option.
	N	

If the «INTERFACE» parameter has been configured as SERIAL1		
Parameter	***Values possible***	***Description***
RS1 EMULATION	**OLIVETTI ***	Default emulation of the port.
	IBM	
BAUD RATE	**9600 ***	Data transmission/reception speed.
	4800	
	2400	
	1200	
	19200	
	38400	
BIT/CHAR	7	Data format at 7 or 8 bits.
	8 *	
PARITY	**NONE ***	This parameter is used to set the presence and type of parity control (even or odd). By default, parity control is disabled (none).
	ODD	
	EVEN	
STOP BIT	**1 ***	Number of stop bits.
	2	
DSR	N	Data Set Ready managed or not
	Y *	
DCD	**NO ***	Data Carrier Detector managed or not.
	YES	

If the «INTERFACE» parameter has been configured as PARALLEL		
Parameter	***Values possible***	***Description***
PAR. EMULATION	**OLIVETTI ***	This parameter is used to set the emulation type of the parallel port.
	IBM	
PAR. PORT MODE	CX	This parameter is used to set the operation mode for the parallel port.
	BIDIRECT.	

If the «INTERFACE» parameter has been configured as COM1-USB		
Parameter	***Values possible***	***Description***
RS1 EMULATION	See INTERFACE SERIAL1 parameters	
BAUD RATE		
BIT/CHAR		
PARITY		
STOP BIT		
DSR		
DCD		
USB EMULATION	See INTERFACE USB parameters	
PLUG&PLAY		

If the «INTERFACE» parameter has been configured as USB-PAR		
Parameter	***Values possible***	***Description***
USB EMULATION	See INTERFACE USB parameters	
PLUG&PLAY		
PAR. EMULATION	See INTERFACE PARALLEL parameters	
PAR. PORT MODE		

If the «INTERFACE» parameter has been configured as DUAL-PAR.		
Parameter	***Values possible***	***Description***
RS1 EMULATION	See INTERFACE SERIAL1 parameters	
BAUD RATE		
BIT/CHAR		
PARITY		
STOP BIT		
DSR		
DCD		
PAR. EMULATION	See INTERFACE PARALLEL parameters	
PAR. PORT MODE		

IBM Menu parameters

Parameter	*Values possible*	*Description*
EMULATION	P.P.II	Selection of IBM emulation
	X24	
AGM	N	If emulation X24 is set, the AGM function is disabled.
	Y *	If emulation X24 is set, the AGM function is enabled.
PASSBOOK	N	Indicates whether the printer is enabled or not to handle passbooks.
	Y *	
BINDING	VERTICAL	Linked to the "PASSBOOK: Y". item, selects the type of binding of the passbook (horizontal or vertical). If horizontal binding is selected, during printing on the passbook, the head will exit the passbook close to the binding so as to improve feeding.
	HORIZONTAL	
SIDE	L	Selecting "R (Right)", SW compatibility with the PR50 with Right alignment is obtained. Selecting "L (Left)" SW compatibility with the PR50 with Left alignment is obtained.
	R	
CHAR SET	**PC ***	Selection of the character generator.
	ISO	
PC CHAR SET	DK/N	If the character generator selected has been PC
	DK	
	210	(GR)
	220	(E)
	437	(INT)
	850	(LATIN 1)
	851	(GREEK)
	852	(LATIN 2)
	855	(CYRILLIC)
	857	(LATIN 5)
	858	(LATIN EURO)
	860	(P)
	862	(IL)
	863	(CANADIAN FRENCH)
	864	(ARABIC)
	865	(NORDIC)
	866	(CYRILLIC)
	1250	(PC WIN Latin2)
	252	(PC WIN Latin1)
ISO SET	OLI-UNIX	If the character generator selected has been ISO
	ISO 8859/1	
	ISO 8859/2	
	ISO 8859/5	
	ISO 8859/6	
	ISO 8859/7	
	ISO 8859/8	
	ISO 8859/9	
	ISO 8859/15	

Parameter	*Values possible*	*Description*
PC TABLE	TABLE 1 **TABLE 2 ***	Selection of the table of the character generator.
CHAR DEFINITION	LQ **DRAFT *** OCR-A OCR-B	Selection of print definition.
CPI	**10 *** 12 15/17,1	Selection of printing pitch, expressed in number of characters per inch.
COMPRESSED	**17,1 *** 15	Defines the spacing selected with ESC >
LF + CR	**N *** Y	Activates (Y) or disactivates (N) automatic execution of a carriage return (CR) whenever a line feed command is received (STATION1).
CR + LF	**N *** Y	Activates (Y) or disactivates (N) automatic execution of a line feed (STATION1) whenever a carriage return (CR) command is received.
LF HEAP UP	**NEVER *** AFTER EJECT	
ESC BEL 0 CHECK	**NORMAL *** FAST	
ZERO SLASHED	**N *** Y	Enables (Y) or disables (N) printing of the zero slash.
LINE LENGTH	**80 *** 90	Selection of the maximum length of the print line, expressed in number of characters at 10 cpi.
INSERT MODE	**DIRECT *** PR2 LIKE	
FORM LENGTH FRONT	**12 *** 11	Selection of the maximum form length, expressed in inches.
BOF IBM-PP LIKE	N **Y ***	Selects the type of bottom margin of the form (BOF) for the document managed. N - The value of the bottom margin will be 4.23 mm. Y - The value of the bottom margin will be 13.7 mm.

Parameter	Values possible	Description
TOF IBM-PP LIKE	**Y ***	Selects the type of top margin of the page (TOF) for the document managed. N - The value of the top margin will be between 4.23 mm (defined through calibration) for documents and 7.4 mm for passbooks. Y - The value of the top margin will be 4.3 mm for documents and 7.4 for passbooks.
	N	
PNS SELECTION	**N ***	Selecting (Y) permits access to the selection menu of the PNS in the IBM environment.
	Y	
PNS # 4192	**N ***	If enabled, on reception of a Form Feed, ejection is performed regardless of the form length selected.
	Y	
PNS # 4501	**N ***	Selects spacing of 1/5".
	Y	
SAVE PARAMETERS	N	Saves (Y) or cancels (N) the values configured in this area of the programming menu.
	Y *	

"OLIVETTI" menu parameters

Parameter	Values possible	Description
EMULATION	PR2 / PR2E	Selection of OLIVETTI emulation
	PR40	
	PNS2845	
LINE BUFFER PR40 LIKE	N	**If PR40 emulation is selected,** selecting (Y), the length of the receiving buffer is set as PR40 (1 Kb) or 8 Kb.
	Y *	
TOP MARGIN PR40 LIKE	N	**If PR40 emulation is selected**, selecting (Y), TOF is managed by a fixed mechanical head (PR 40). Selecting (N), TOF can be adjusted.
	Y *	
PASSBOOK	N	**If PR2 / PR2E emulation is selected**, indicates if the printer is enabled or not for handling passbooks.
	Y *	
BINDING	VERTICAL	Depends on the "PASSBOOK: Y" item. Selects the type of binding of the passbook (horizontal or vertical). If horizontal binding is selected, during printing on the passbook, the head will exit from the passbook close to the binding, in order to improve feeding of the passbook.
	HORIZONTAL	

Parameter	*Values possible*	*Description*
SIDE	L	If the printer is enabled for handling handbooks, selecting "L" (Left) the SW is set up to be compatible with the PR50 with left alignment.
	R	Selecting "R" (Right) the SW is set up to be compatible with the PR50 with right alignment. In this case refer to the table on page 4-15 for the specific parameters to configure.
CHAR SET	**OLIVETTI ***	Selects the character generator.
	IBM / PC	
IBM CHAR SET	**PC**	If the character generator selected has been IBM/PC.
	ISO	
OLI. CHAR SET	ST15INT ST15ITA ST15P ST15USSR ST15SDC ST15E ST15E2 ST15S/SF ST15CH ST31 ST15TR ST15USA ST15YU ST15ARABIC ST15CND ST15CIBC ST15 DK/N ST15L ST15F ST15UK ST150 ST15GR	If the character generator selected has been **OLIVETTI**.
PC CHAR SET	DK/N DK 210 220 **437 *** 850 851 852 855 857 858 860 862 863 864 865 866 1250 252	If the character generator selected has been **IBM CHAR SET --> PC** (GR) (E) (INT) (LATIN 1) (GREEK) (LATIN 2) (CYRILLIC) (LATIN 5) (LATIN EURO) (P) (IL) (CANADIAN FRENCH) (ARABIC) (NORDIC) (CYRILLIC) (PC WIN Latin2) (PC WIN Latin1)

Parameter	*Values possible*	*Description*
ISO SET	OLI-UNIX ISO 8859/1 ISO 8859/2 ISO 8859/5 ISO 8859/6 ISO 8859/7 ISO 8859/8 ISO 8859/9 ISO 8859/15	If the character generator selected has been **IBM CHAR SET --> ISO**
CHAR DEFINITION	LQ **DRAFT *** OCR-A OCR-B	Selection of print definition.
CPI	5 **10 *** 12 15 16,6 17,1	Selection of printing pitch..
COMPRESSED	17,1 **16.6 ***	Defines the spacing selected with ESC >
VERTICAL RESOL.	**1/240 inch *** 1/216 inch	Selection of vertical resolution.
LF + CR	**N *** Y	Activate (Y) or disactivate (N) automatic execution of a carriage return (CR) every time a line feed command (STATION1) is received.
LINE LENGTH	**90 *** 94	Selection of the maximum width of the print line, expressed in number of characters at 10 cpi.
REPLY SYNCHRON.	**N *** Y	Management of the DSR in transmission.
STATUS REQUEST	**NO WAIT *** WAIT	This parameter determines the timing of the status reply to an ESC j command. Selecting NO WAIT, the reply will be provided as soon as possible and in parallel with printing or paper movements. Selecting WAIT, the status reply will be provided at the end of printing.
OPTION HOR. MSRW	This is a warning message related to the Horizontal Magnetic option. Refer to section “If the horizontal magnetic option is present” on page 4 - 16	
SAVE PARAMETERS	NO **YES ***	Saves (Y) or cancels (N) the values configured in this area of the programming menu.

If the SIDE --> R parameter has been selected		
Parameter	***Values possible***	***Description***
AFF	**STD ***	Selects the width of the print line.
	USA	
LINE BUFFER PR2845 LIKE	**N ***	***If the SIDE --> R parameter has been selected,*** sets the width of the reception buffer to 2845 (512 Byte) or 8 K bytes.
	Y	
NATION	INT USA D P E E2 DK/N F I S/SF CH UK YU IL GR CND STD 31 SDC TR IS	***If the SIDE --> R parameter has been selected*** , sets up the character generator for the country specified.
CHAR DEFINITION	LQ	Selection of print definition
	DRAFT *	
CPI	**10 ***	Selection of printing pitch
	12	
WARNING	**END OF PAPER ***	Selection of paper out or cover photosensor message.
	PHOTO SENSORTOP	
TOP OF FORM	**1 ***	Selects the first or second printable line.
	2	
STATUS REQUEST	**NO WAIT ***	This parameter determines the timing of the status reply to an ESC j command. Selecting NO WAIT, the reply will be provided as soon as possible and in parallel with printing or paper movements. Selecting WAIT, the status reply will be provided at the end of printing.
	WAIT	

If the horizontal magnetic option is present

OPTION HOR. MSRW

Message indicating that the option has been installed. There is no selection and the next selection is printed after this title. If the hor. magn. / MICR option is present, "**+ MICR**" is shown beside "MSRW".

Parameter	***Values possible***	***Description***
STANDARD	DIN/ISO	Sets the magnetic standard. See page 4-17
	ANSI	See page 4-17
	IBM 3604 *	See page 4-16

If the IBM 3604 STANDARD has been configured

Parameter	***Values possible***	***Description***
END-SENTINEL	**C ***	Sets the closing code.
	F	
DISPLACEMENT	**STANDARD ***	Sets the position of the magnetic stripe.
	+10	
	+ 20	
DUPLICATE:	**N ***	Sets or not duplication of the field.
	Y	
DOUBLE FIELD	**N ***	Sets or not control on the two fields recorded.
	Y	
RETRY	3	Sets read retries.
	1	
STRIPE HANDLING	NORMAL	Permits fast or normal management of the magnetic stripe. In the case of normal management, each time the magnetic stripe is read or written, passbook width is measured in order to establish the precise position of the stripe.
	FAST	In fast management, the width of the passbook is measured once only with the procedure described in the specific chapter and no measurements are made during reading or writing of the stripe, thus increasing speed of management of the stripe.

If the ANSI or DIN/ISO STANDARD has been configured		
Parameter	***Values possible***	***Description***
DISPLACEMENT	**STANDARD ***	Sets the position of the magnetic stripe.
	+10	
	+ 20	
DUPLICATE:	**N ***	Sets or not duplication of the field.
	Y	
DOUBLE FIELD	**N ***	Sets or not control on the two fields recorded.
	Y	
RETRY	3	Sets read retries.
	1	
STRIPE HANDLING	NORMAL	Permits fast or normal management of the magnetic stripe. In the case of normal management, each time the magnetic stripe is read or written, passbook width is measured in order to establish the precise position of the stripe.
	FAST	In fast management, the width of the passbook is measured once only with the procedure described in the specific chapter and no measurements are made during reading or writing of the stripe, thus increasing speed of management of the stripe.

CALIBRATING THE PHOTOSENSORS

Machine photosensors are calibrated at the factory. Changes in the electrical characteristics of the photosensors or the use of particular paper may require further calibration at the customer site.

Machine photosensors that must be calibrated are:

- «**Paper present**» photosensors
  Consist of two LEDs and two photo-receivers and are the first to detect insertion of the document in the front slot. The light beam is transmitted by optical fibers.
- «**Front paper alignment**» photosensors
  Housed in the same mechanical unit as the paper present photosensors, indicated in this manual as front photosensors assy. The front paper alignment photosensors check alignment of the document before this moves close to the printhead. They consist of four LEDs and the same number of photo-receivers, all coupled by optical fibers.
- «Autoborder» photosensor
  Is fitted on the printhead and detects the presence of the paper in order to measure the position of the first print column. This photosensor also permits (if selected from set-up) control of printing interrupt functions if the paper is narrower than the print line sent by the system.

The position in the machine of the individual photosensors is shown in the following figure.

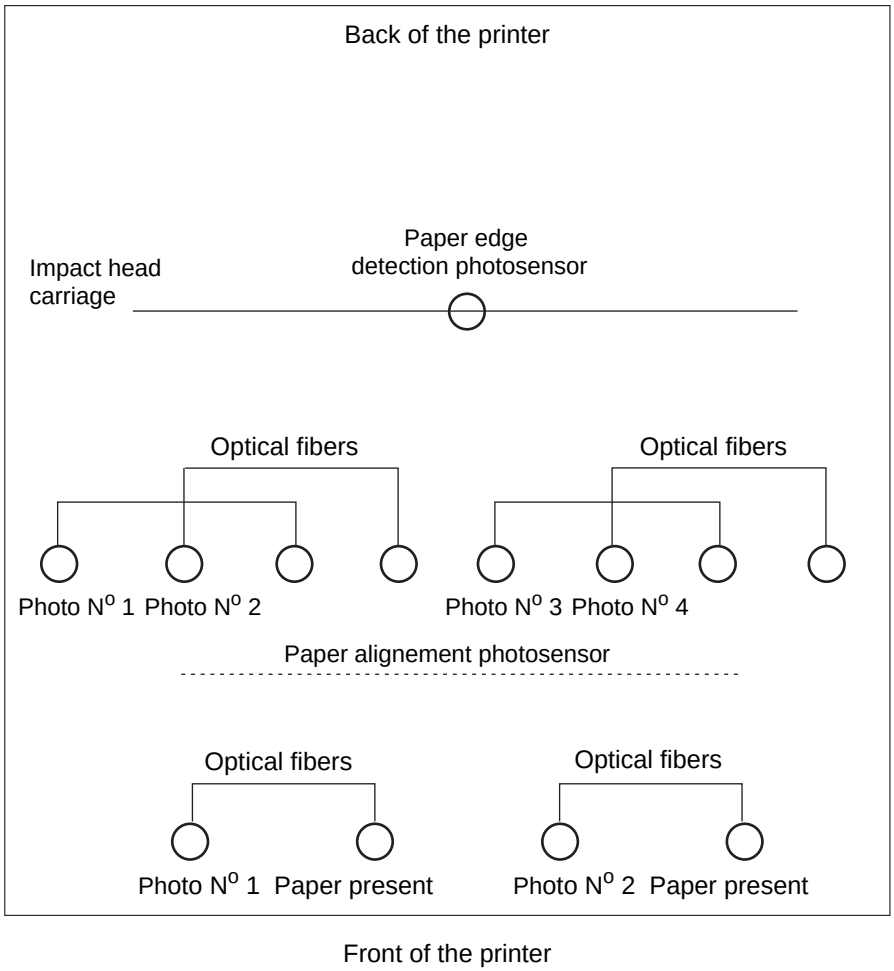
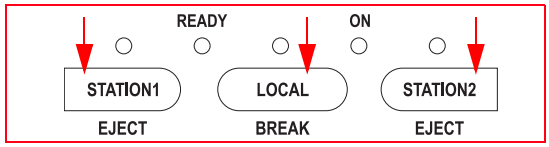


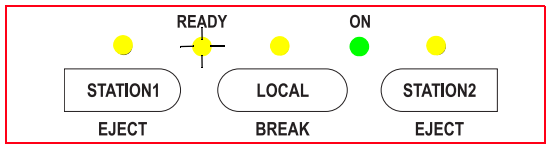
Figure 4 - 2 Locating the machine photosensors

To carry out the photosensor calibration procedure, proceed as follows:

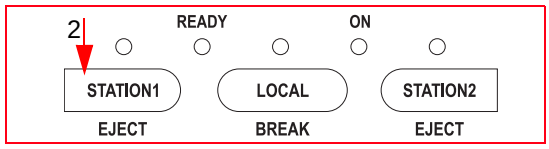
1. Open the printer cover. Check that the printhead is positioned on the left (end of carriage).
2. Power on the printer, with the cover open, keeping the three console keys pressed.



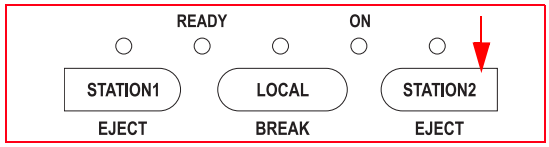
3. Wait for the acoustic signal that indicates access to the calibration and adjustment procedure.
4. Close the printer cover.
   4 LEDs are illuminated while the READY LED flashes.



5. Press the **STATION1** key twice and wait until the LED "insert paper" (STATION 2) illuminates. The printer logic will read the current and voltages present on the photosensors when paper is absent.



6. Into the front slot, insert a sheet in Mylar (code 473245H01) and press the **STATION2** key. The sheet is inserted completely in a way that it covers all the photosensors. At the same time, the printer logic will perform a reading of the currents and voltages present on the photosensors for the paper present status.



7. Press the **STATION2** button. Wait for the end of the movement that introduces and ejects the sheet.
8. If, after ejection of the sheet, there are no faults, the console LEDs will remain off; subsequent re-insertion of a sheet of A4 paper will permit printing of the values read and selected for each individual photosensor.
9. Verify that the values printed for every photosensor are included within the limits indicated in the following figure. If the values respect the limits, the sensors are functioning correctly. On the other hand if any value is anomalous (outside or very near to the limit), it means that the photosensor is either dirty or very near breakage point.
   - 1 - Minimum value acceptable greater than or equal to 3500.
   - 2 - Maximum value acceptable less than or equal to 1500.
   - 3 - The difference between the acceptable values for B and the acceptable values for A must be at least 3000.

1: minimum value ≥ 3500

2: maximum value ≤ 1500

3: B-A ≥ 3000

Photosensors	1 Paper No (mV.)	2 Paper Yes (mV.)	Average val. (mV.)	Current (mA.)
Photosens. 1 front paper present	4xxx	0xxx	1xxx	8,2
Photosens. 2 front paper present	4xxx	0xxx	1xxx	12,3
Photosens. 1 front paper align.	4xxx	0xxx	1xxx	11
Photosens. 2 front paper align.	2xxx	1xxx	0xxx	23
Photosens. 3 front paper align.	4xxx	0xxx	1xxx	4,6
Photosens. 4 front paper align.	4xxx	0xxx	1xxx	5
Rear paper present photosens.	1xxx	4xxx	2xxx	25
Paper edge printhead photo.	1xxx	4xxx	2xxx	18

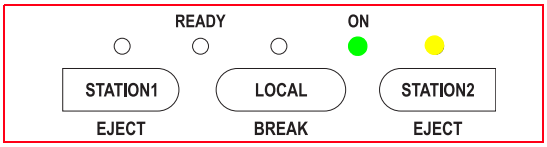
A = 1 (Paper No), B = 2 (Paper Yes), 3 = B-A

Figure 4 - 3 Voltages and currents measured on photosensors

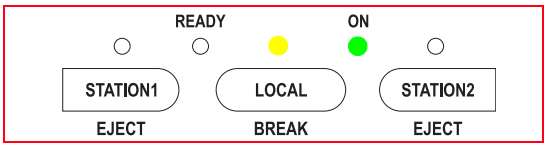
10. If the calibration operations complete with a positive outcome, the printer returns automatically to its initial state, allowing another calibration or adjustment procedure to be selected.

If calibration fails, the faulty photosensor will be indicated by the configurations of the LEDs. Pressing one the console button highlights any other faulty photosensors.

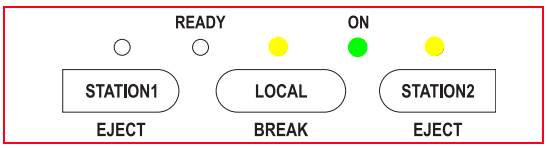
Breakdown of photosensor n. 1 Front paper alignment.



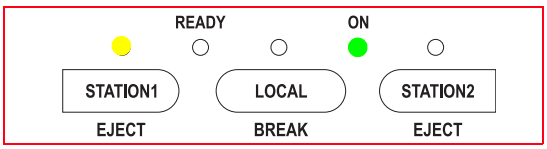
Breakdown of photosensor n. 3 Front paper alignment.



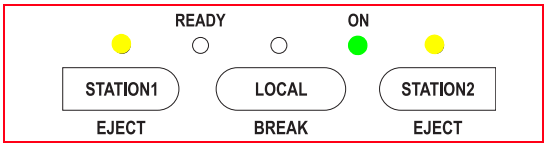
Breakdown of photosensor n. 2 Front paper alignment.



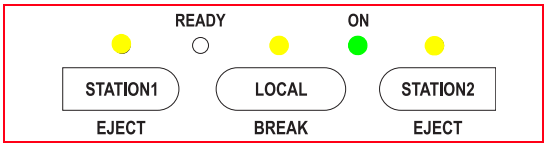
Breakdown of photosensor n. 4 Front paper alignment.



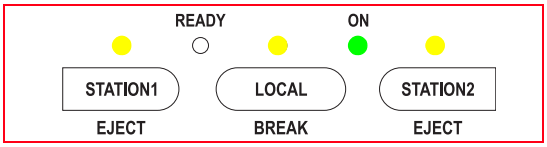
Breakdown of photosensor n. 1 Front paper present.



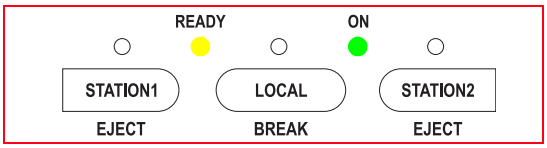
Breakdown of photosensor n. 2 Front paper present.



Breakdown of printhead photosensor with carriage reset function.



Breakdown of printhead photosensor with paper border reading function.



WARNING: if calibration is not completed correctly, it will not be possible to make the other calibrations or measurements. In this case, switch off the printer and retry the operation. If calibration continues to give problems, carry out the procedure for cleaning or replacing the defective photosensor(s) as indicated in the section “PROCEDURE FOR CLEANING / REPLACING THE PHOTOSENSORS” on page 6 - 2.

Printing photosensor calibration values

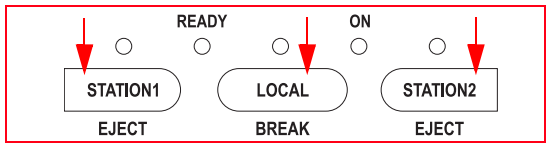
Bi-directional printing speeds up the writing of the printer, but it could reduce printing quality if a misalignment occurs between the lines written from left to right and vice-versa. To eliminate this defect, you can optimise the alignment of bi-directional printing through calibration.

Calibration must be performed for each of the following printing modes:

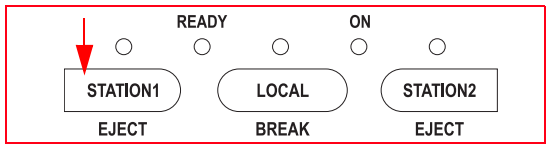
- Very High Speed Draft, High Speed Draft
- Draft
- Near Letter quality, Letter quality

To calibrate the alignments, proceed as follows.

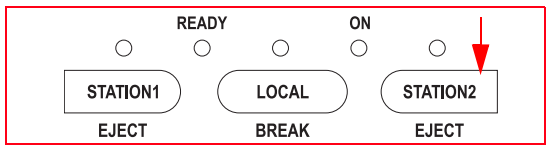
1. Open the printer cover.
2. Power on the printer, with the cover open, keeping the three console keys pressed.
3. Wait for the acoustic signal that indicates access to the calibration and adjustment procedure, then close the cover.



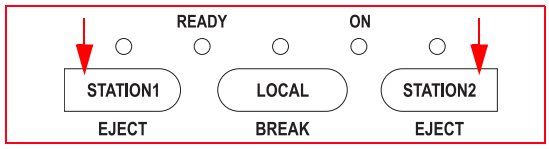
4. Press the **STATION1** button.



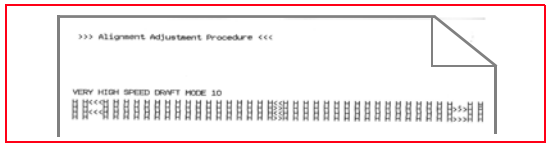
5. Press the **STATION2** button.



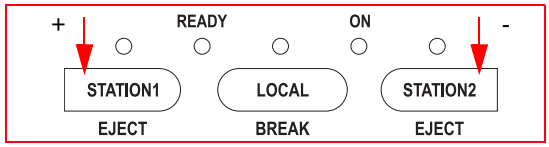
6. Press the **STATION1** and **STATION2** keys simultaneously. For all the printing modes, the default values theoretically near to the correct ones will be saved.



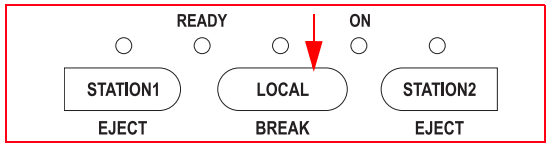
7. Insert an A4 sheet in the front slot to check print alignment status.



8. Press the **STATION1** and/or **STATION2** keys to calibrate the alignments.
   - By pressing the **STATION1** key you can anticipate start of printing.
   - By pressing the **STATION2** key you can delay the start of printing.



9. Repeat points 7 and 8 until calibration has been completed.
10. Press the **LOCAL** button twice to save the alignment value permanently for the current mode and to move automatically to the next calibration.
11. Carry out the calibration for the printing modes required.
12. To terminate the calibration, switch off the printer.

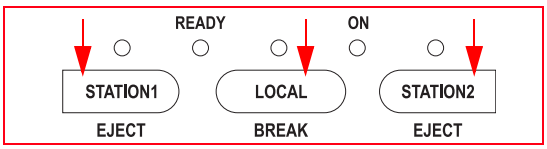


NOTE: mode and spacing changes occur automatically.

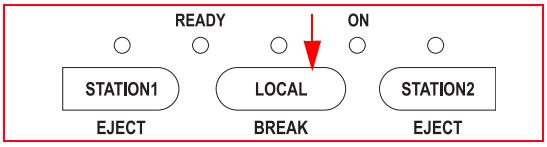
Calibrating the top of form (TOF)

This calibration makes it possible to set the distance between the left-hand edge of the document and the first character printed.

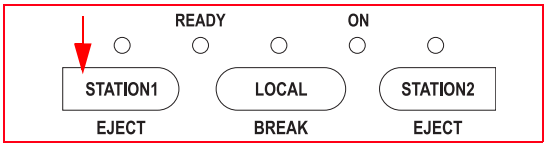
1. Open the printer cover.
2. Power on the printer, with the cover open, keeping the three console keys pressed.
3. Wait for the acoustic signal that indicates access to the calibration and adjustment procedure, then close the cover.



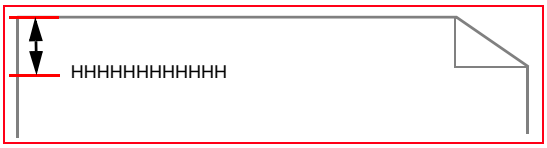
4. Press the **LOCAL** button and wait until the end of the machine reset procedure.



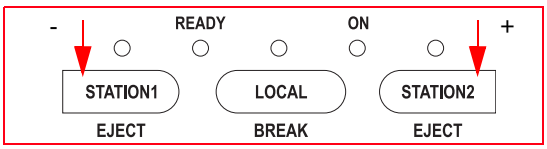
5. Press the **STATION1** button.

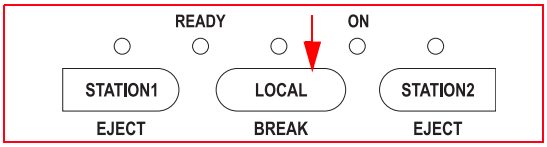


6. Insert an A4 sheet in the front slot to check the status of the current TOF. This check is made printing a specific text. If the current TOF is too "high", printing may be carried out off the sheet.



7. Press the **STATION1** and/or **STATION2** keys to calibrate the TOF
   - Pressing the **STATION1** key you can decrease the TOF
   - Pressing the **STATION2** key you can increase it.
8. Repeat steps 6 and 7 in a cyclic fashion until you obtain a correct margin.
9. Press the **LOCAL** key to save permanently the left margin.



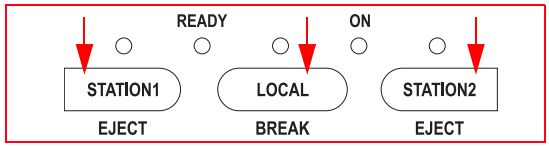


Calibrating the left margin

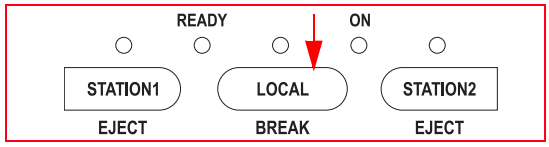
This calibration makes it possible to set the distance between the left-hand edge of the document and the first character printed.

To carry out this calibration, proceed as follows:

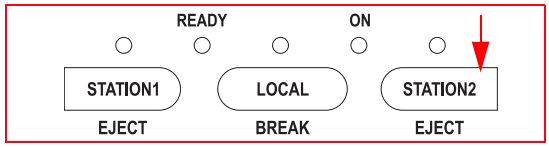
1. Open the printer cover.
2. Power on the printer, with the cover open, keeping the three console keys pressed.
3. Wait for the acoustic signal that indicates access to the calibration and adjustment procedure, then close the cover.



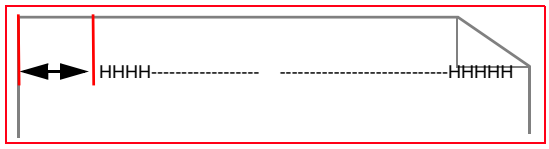
4. Press the **LOCAL** button and wait until the end of the machine reset procedure.



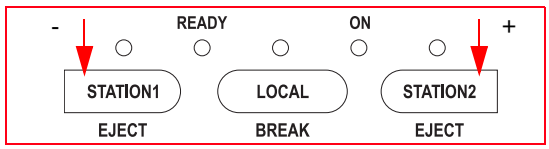
5. Press the **STATION2** button.



6. Insert an A4 sheet and wait for the page to be printed. Check that the left-hand margin is set to the measurement required.



7. Press the **STATION1** and/or **STATION2** keys to calibrate the left printing margin.
   - Pressing the **STATION1** key you can decrease the left margin.
   - Pressing the **STATION2** key you can increase it.



8. Repeat steps 6 and 7 in a cyclic fashion until you obtain a correct margin.
9. Press the **LOCAL** key to save permanently the left margin.

Measuring document length

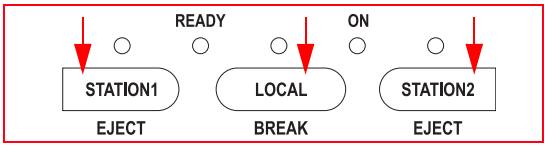
It is necessary to measure the width of the form to permit faster management of the magnetic stripe of the passbooks. Selecting, via set-up, the "STRIPE HANDLING: FAST" item, (see page 4-17) the value read with the form measurement procedure will be used to determine the position of the magnetic stripe and for positioning of the stripe above the magnetic head (without having to make several measurements of passbook width). This considerably reduces passbook management time.

To carry out this calibration, proceed as follows:

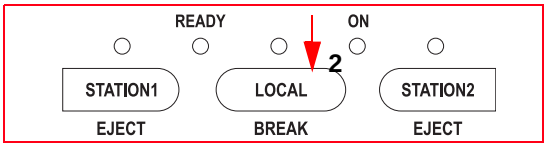
NOTE: if this type of management is to function correctly, the same passbooks as measured must be used.

To carry out this calibration, proceed as follows:

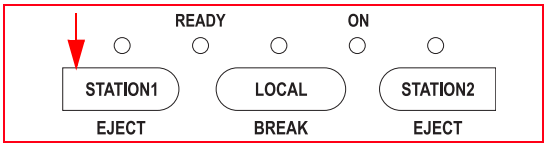
1. Open the printer cover.
2. Power on the printer, with the cover open, keeping the three console keys pressed.
3. Wait for the acoustic signal that indicates access to the calibration and adjustment procedure, then close the cover.



4. Press the **LOCAL** button and wait for the end of the machine reset procedure.
5. Press again the **LOCAL** key and wait until the end of the reset procedure for the printer.



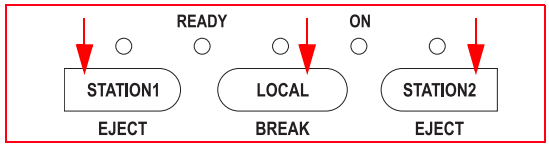
6. Insert an A4 sheet in the front slot and press **STATION1**. The sheet will be introduced and ejected automatically.
7. If necessary, repeat point 6.
8. Press the **LOCAL** button to permanently save the value of the form width measured and to move automatically to the next calibration.

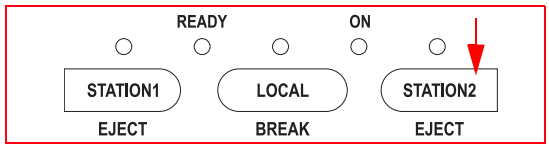


MICR Calibration

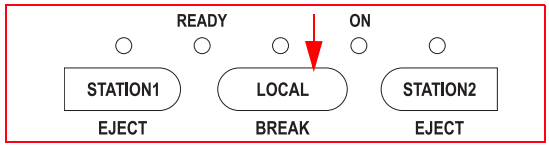
To calibrate the MICR, proceed as described below:

1. Open the printer cover.
2. Power on the printer, with the cover open, keeping the three console keys pressed.
3. Wait until the acoustic signal that indicates that the calibration and adjustment procedure has begun.
   Close the printer cover.
4. Press the **STATION2** key and wait until there is a complete mechanical reset of the printer.

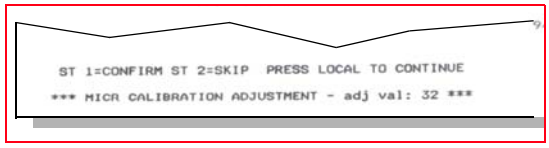




5. Press the **LOCAL** key.



6. Insert an A4 sheet. The printer prints the operation notes for this calibration procedure.
7. Press the **LOCAL** key to proceed.



8. Check the MICR calibration value written on the MICR CALIBRATION CHEQUE, coded with spare parts code 474245A. This value is written at the bottom, halfway down the document (example: 95).

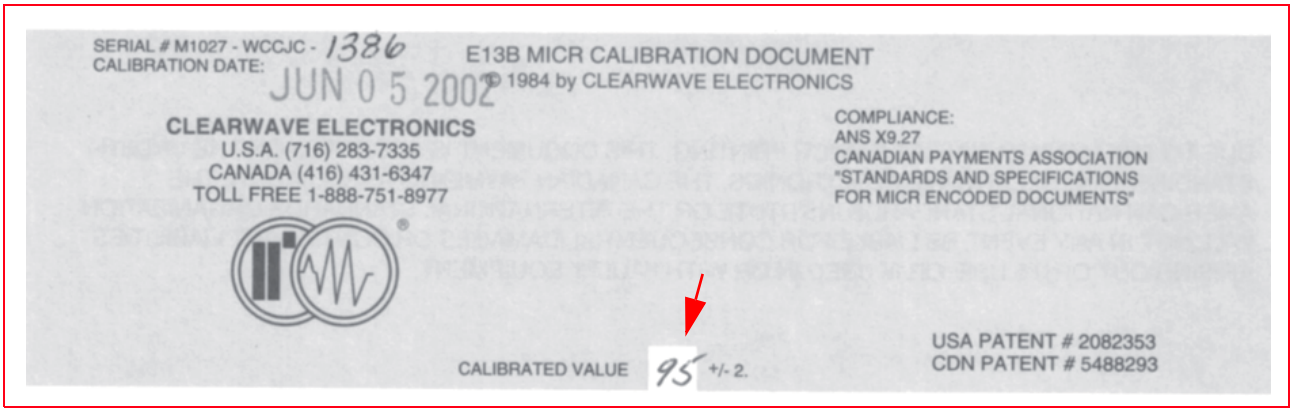
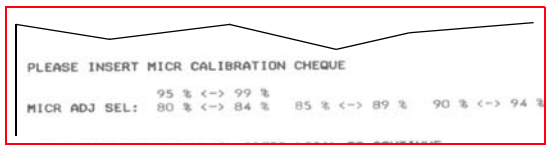


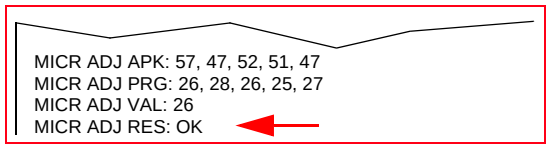
Figure 4 - 4 MICR CALIBRATION CHEQUE (code 474245A)

9. Press the **STATION 2** key until you find the corresponding value written on the "MICR calibration cheque".
10. Press the **STATION1** key to confirm.
11. The A4 sheet is ejected from the printer.



12. To calibrate the MICR head, insert the MICR CALIBRATION CHEQUE board into the front slot of the printer.
13. The MICR head performs 5 transactions and, at the end, saves the calibration reached, consistent with the value given on the MICR CALIBRATION CHEQUE board.
14. The printer ejects the MICR CALIBRATION CHEQUE board.

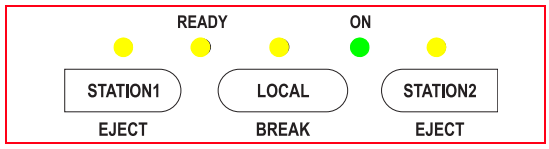
15. Insert an A4 sheet and the printer will print the correct values (see example on side).



16. Always check the value "MICR ADJ RES": OK This value is of great importance; it certifies that the MICR head is working correctly.
17. Proceed to check the JITTER.

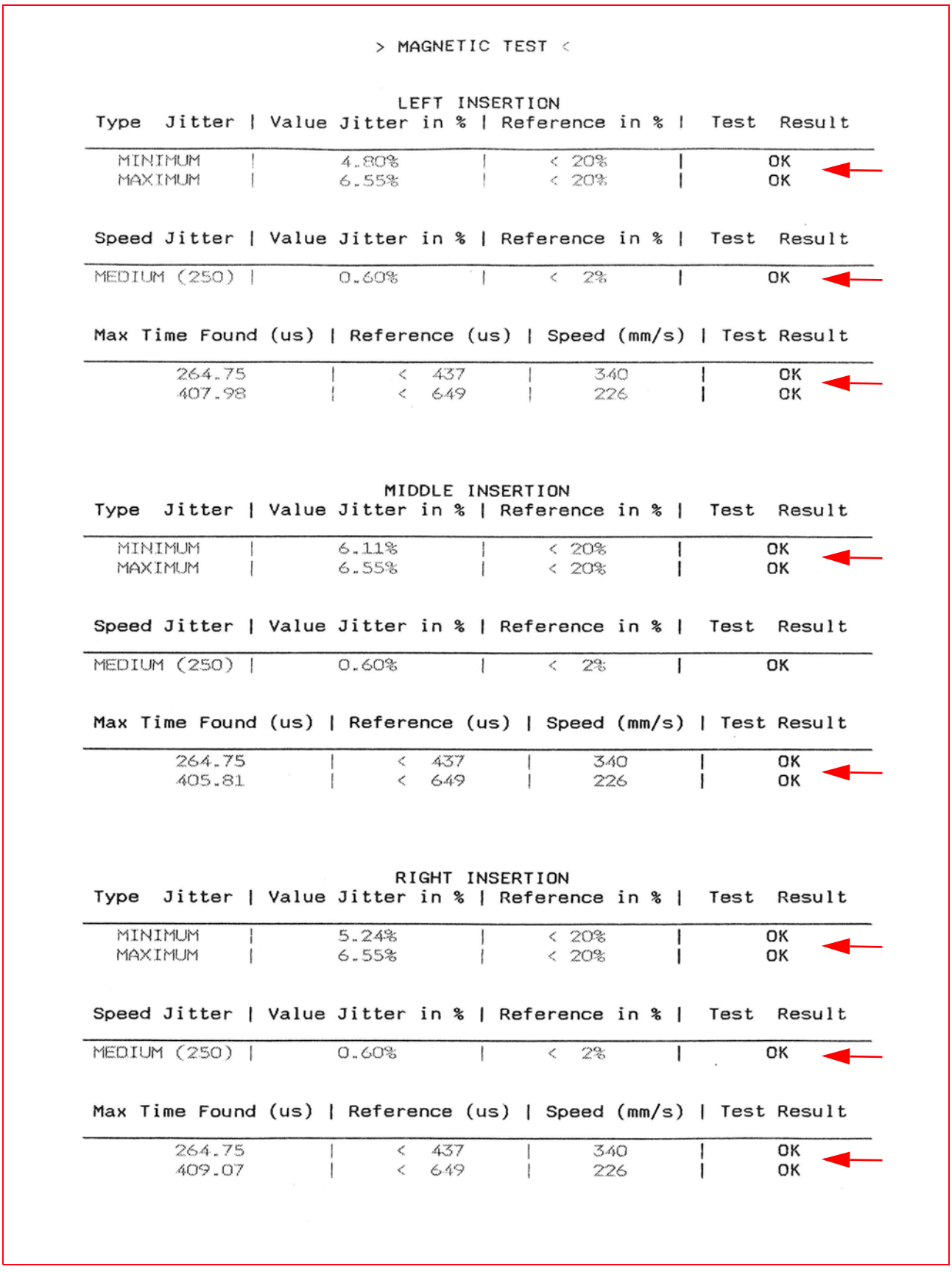
Checking the JITTER

1. At the end of the procedure for calibrating the MICR, all the LEDs on the printer will be illuminated.



2. Insert the **JITTER board**, code XYAB4581, being careful to keep the magnetic band of the board in a horizontal position, oriented downwards and aligned completely to the left.
3. The printer performs a magnetic transaction.
4. Re-insert the JITTER board with the magnetic band in a horizontal position, oriented downwards and aligned with the centre.
5. The printer performs a magnetic transaction.
6. For the third time, insert the JITTER board with the magnetic band in a horizontal position, oriented downwards and aligned completely to the right.
7. The printer performs a magnetic transaction.
8. Insert an A4 sheet.
9. The calibration values are printed (Magnetic Test) - Refer to the figure on the following page.
10. Check that the result of the tests is OK for all the measurements.
11. Switch off the printer.

NOTE: if only the Horizontal Magnetic option is present, during the calibration phase the printer requests only testing of the JITTER.



> MAGNETIC TEST <

LEFT INSERTION

Type Jitter	Value Jitter in %	Reference in %	Test Result
MINIMUM	4.80%	< 20%	OK
MAXIMUM	6.55%	< 20%	OK

Speed Jitter	Value Jitter in %	Reference in %	Test Result
MEDIUM (250)	0.60%	< 2%	OK

Max Time Found (us)	Reference (us)	Speed (mm/s)	Test Result
264.75	< 437	340	OK
407.98	< 649	226	OK

MIDDLE INSERTION

Type Jitter	Value Jitter in %	Reference in %	Test Result
MINIMUM	6.11%	< 20%	OK
MAXIMUM	6.55%	< 20%	OK

Speed Jitter	Value Jitter in %	Reference in %	Test Result
MEDIUM (250)	0.60%	< 2%	OK

Max Time Found (us)	Reference (us)	Speed (mm/s)	Test Result
264.75	< 437	340	OK
405.81	< 649	226	OK

RIGHT INSERTION

Type Jitter	Value Jitter in %	Reference in %	Test Result
MINIMUM	5.24%	< 20%	OK
MAXIMUM	6.55%	< 20%	OK

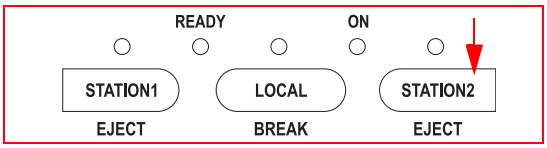
Speed Jitter	Value Jitter in %	Reference in %	Test Result
MEDIUM (250)	0.60%	< 2%	OK

Max Time Found (us)	Reference (us)	Speed (mm/s)	Test Result
264.75	< 437	340	OK
409.07	< 649	226	OK

Figure 4 - 5 Printing calibration values when verifying Jitter (Magnetic test)

Calibrating the scanner

1. Open the printer cover.
2. Power on the printer, with the cover open, keeping the three console keys pressed.
3. Wait until the acoustic signal that indicates that the calibration and adjustment procedure has begun.
4. Close the printer cover.
5. Press the **STATION2** key and wait until there is a complete mechanical reset of the printer.
6. Press the **STATION2** key again.



7. Insert the **scanner calibration sheet**, code XYAB3976, with the opaque face turned upwards and aligned completely to the left.
8. Wait for calibration of the CIS on the scanner front/back.
9. Wait for calibration of the front/back left /TOF margin.
10. Introduce an A4 sheet for printing the calibration parameters. See the figure on the following page.

For the calibration parameters printed, check:

- The presence of the FRONT SCAN and the REAR SCAN;
- That there are no failures. Failure: None;
- that the values of the parameter "Mechanical scan pixel overlap" for the FRONT SCAN and for the REAR SCAN are both less than 20/300". In the case that these values are higher, repeat the calibration paying maximum attention to aligning the calibration sheet completely on the left.

After the calibration, during the self-test phase, the printer indicates: Scanner front/rear present.

NOTE: to print the calibration parameters without changing the current values, just enter the procedure for printing the calibration values for photosensors: the scanner values will be printed after those for the photosensors.

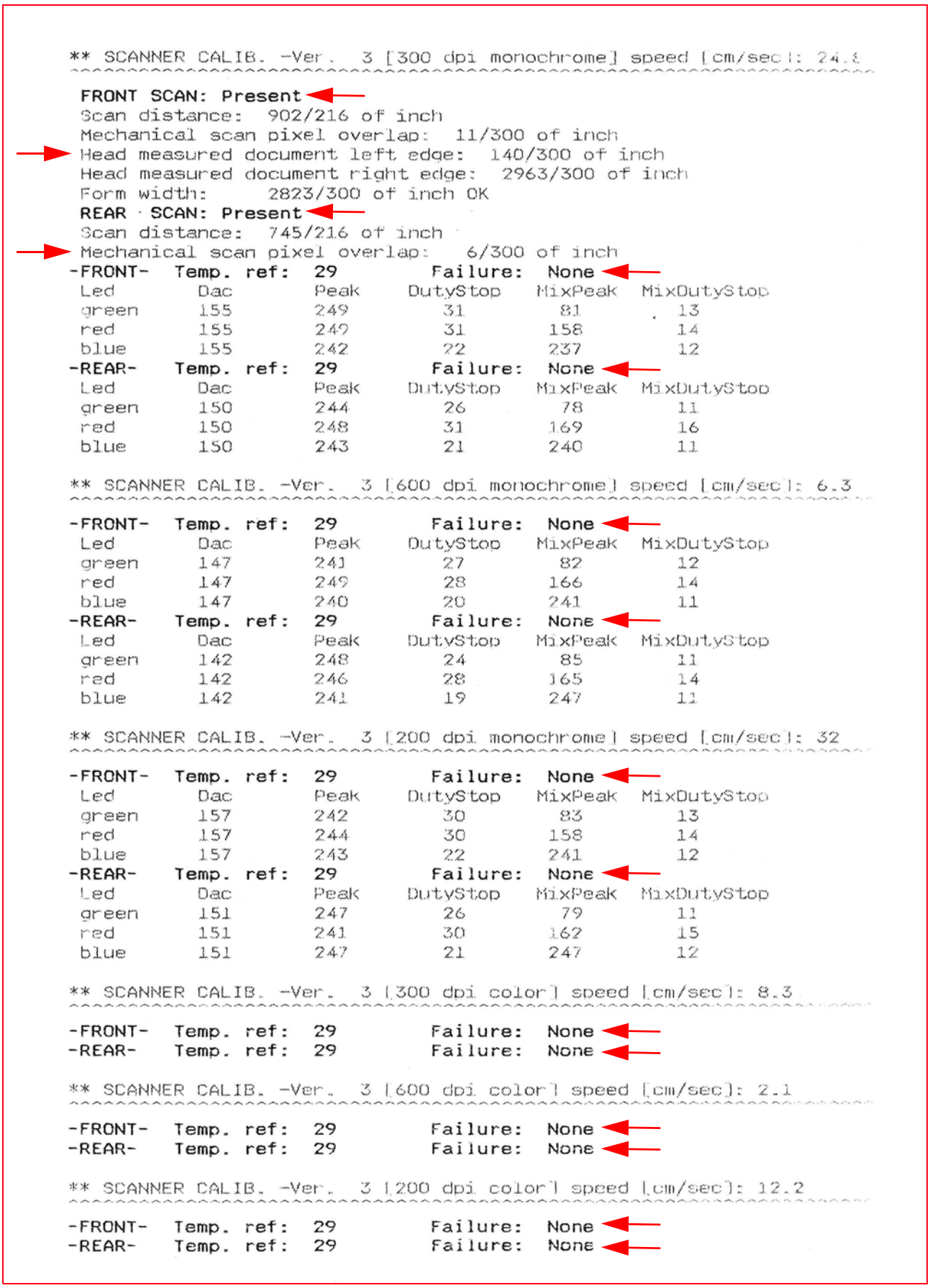

** SCANNER CALIB. -Ver. 3 [300 dpi monochrome] speed [cm/sec]: 24.6
FRONT SCAN: Present
Scan distance: 902/216 of inch
Mechanical scan pixel overlap: 11/300 of inch
Head measured document left edge: 140/300 of inch
Head measured document right edge: 2963/300 of inch
Form width: 2823/300 of inch OK
REAR SCAN: Present
Scan distance: 745/216 of inch
Mechanical scan pixel overlap: 6/300 of inch
-FRONT- Temp. ref: 29 Failure: None
Led Dac Peak DutyStop MixPeak MixDutyStop
green 155 249 31 81 13
red 155 249 31 158 14
blue 155 242 22 237 12
-REAR- Temp. ref: 29 Failure: None
Led Dac Peak DutyStop MixPeak MixDutyStop
green 150 244 26 78 11
red 150 248 31 169 16
blue 150 243 21 240 11
** SCANNER CALIB. -Ver. 3 [600 dpi monochrome] speed [cm/sec]: 6.3
-FRONT- Temp. ref: 29 Failure: None
Led Dac Peak DutyStop MixPeak MixDutyStop
green 147 241 27 82 12
red 147 249 28 166 14
blue 147 240 20 241 11
-REAR- Temp. ref: 29 Failure: None
Led Dac Peak DutyStop MixPeak MixDutyStop
green 142 248 24 85 11
red 142 246 28 165 14
blue 142 241 19 247 11
** SCANNER CALIB. -Ver. 3 [200 dpi monochrome] speed [cm/sec]: 32
-FRONT- Temp. ref: 29 Failure: None
Led Dac Peak DutyStop MixPeak MixDutyStop
green 157 242 30 83 13
red 157 244 30 158 14
blue 157 243 22 241 12
-REAR- Temp. ref: 29 Failure: None
Led Dac Peak DutyStop MixPeak MixDutyStop
green 151 247 26 79 11
red 151 241 30 162 15
blue 151 247 21 247 12
** SCANNER CALIB. -Ver. 3 [300 dpi color] speed [cm/sec]: 8.3
-FRONT- Temp. ref: 29 Failure: None
-REAR- Temp. ref: 29 Failure: None
** SCANNER CALIB. -Ver. 3 [600 dpi color] speed [cm/sec]: 2.1
-FRONT- Temp. ref: 29 Failure: None
-REAR- Temp. ref: 29 Failure: None
** SCANNER CALIB. -Ver. 3 [200 dpi color] speed [cm/sec]: 12.2
-FRONT- Temp. ref: 29 Failure: None
-REAR- Temp. ref: 29 Failure: None

Figure 4 - 6 Scanner calibration parameters

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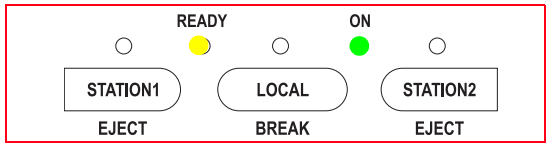
Chapter 5 - MACHINE DIAGNOSTICS

POWER-ON SELF-TEST

The PR2 plus features a set of diagnostic tests that are activated automatically at power-on.

At the end of the self-test phase, if no errors have been detected, the printer switches to READY status (ON and READY LEDs on the console on).

Any FW or HW faults are highlighted by LEDs on the console.



ERROR MESSAGES

In the following are shown two tables indicating the meaning of the LEDs in relation to the type of error situation encountered during the auto-diagnostics phase. The first refers to printers with the serial number 8.xxx.xxx, the second to printers with the serial number 1.xxx.xxx.

Faults are classified as follows:

1. **Non-recoverable fault.** Blocks the machine and is eliminated only by switching off the printer and carrying out the necessary repairs.
2. **Fault that can be recovered by the operator** eliminating the problem (paper jam) and then pressing the **STATION1** key with the cover open.
3. **Anomaly recoverable by calibrating the printer (for example, calibrating photosensors).**

Printer anomalies with serial number 8.xxx.xxx

Console LED					***Anomalies***	***Possible solution***
ON	***Ready***	***Station1***	***Local***	***Station 2***		
-	-	-	-	-	Power unit	See the section “Faults at power-on” on page 5 - 15.
1x **X**	**O**	**O**	**O**	**O**	CRC Error in BOOT sector of flash	Replace the motherboard. See the section Disassembling/reassembling the motherboard (printers with scanner) or Disassembling/ reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).
2x **X**	**O**	**O**	**O**	**O**	Firmware not present	Proceed with forced loading of the firmware.
3x **X**	**O**	**O**	**O**	**O**	Programming error	Replace the motherboard. See the section Disassembling/reassembling the motherboard (printers with scanner) or Disassembling/ reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).

Console LED					Anomalies	Possible solution
ON	Ready	Station1	Local	Station 2		
4x **X**	**O**	**O**	**O**	**O**	Write error on FPGA registers	Replace the motherboard. See the section Disassembling/reassembling the motherboard (printers with scanner) or Disassembling/ reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).
5x **X**	**O**	**O**	**O**	**O**	External SRAM Test failed	Replace the motherboard. See the section Disassembling/reassembling the motherboard (printers with scanner) or Disassembling/ reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).
O	-	-	**O**	-	EEPROM, SW setup	• Reconfigure the printer. • Proceed with forced loading of the firmware. • Replace the motherboard. See the section Disassembling/ reassembling the motherboard (printers with scanner) or Disassembling/reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).
O	-	-	**O**	**O**	EEPROM, HW setup	• Perform all the printer calibrations. See the chapter “PROGRAMMING AND CALIBRATION” on page 4 - 1. • Replace the motherboard. See the section Disassembling/ reassembling the motherboard (printers with scanner) or Disassembling/reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).
O	-	**X**	-	-	Photosensor test failed	See the section “CALIBRATING THE PHOTOSENSORS” on page 4 - 18 for an indication of the defective photosensor.
O	-	**X**	-	**X**	Magnetic reset	Replace the horizontal magnetic or MICR interface card. See the section “Horizontal magnetic/MICR disassembly/reassembly” on page 7 - 28.

Console LED					Anomalies	Possible solution
ON	Ready	Station1	Local	Station 2		
O	-	-	-	X	Time out SBI	• Replace the MICR board. See the section "Horizontal magnetic/ MICR disassembly/reassembly" on page 7 - 28. • Replace the MICR head. See the section "Horizontal magnetic/MICR printhead assy disassembly/reassembly" on page 7 - 30.
O	X	-	-	-	Service motor	See the section "Faults with document handling" on page 5 - 19.
O	-	-	-	X	Paper jammed on insertion photosensors or photosensors dirty	See the section "PROCEDURE FOR CLEANING / REPLACING THE PHOTOSENSORS" on page 6 - 2.
O	-	-	X	X	Character generator missing or corrupt	Proceed with forced loading of the firmware and of the character generator.
O	X	X	-	-	Carriage motor	See the section "Faults during writing of the document" on page 5 - 17.
O	O	O	-	O	PTC power unit not working	Sostituire l'alimentatore. See the section "Fan power supply unit disassembly/reassembly" on page 7 - 26.
O	O	O	O	-	NTC motherboard breakdown - Anomaly on motherboard	Replace the motherboard. See the section Disassembling/reassembling the motherboard (printers with scanner) or Disassembling/ reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).
O	O	O	O	O	Start of auto-diagnostic cycle on powering on.	
O	-	-	-	-	End of auto-diagnostic cycle on powering on.	

O = LED ON
- = LED OFF
X = LED FLASHING (Number X indicates the number of flashes)

Printer anomalies with serial number 1.xxx.xxx

Console LED					*Anomalies*	*Possible solution*
ON	*Ready*	*Station1*	*Local*	*Station 2*		
-	-	-	-	-	Power unit	See the section “Faults at power-on” on page 5 - 15.
1x **O**	**X**	**X**	**X**	**X**	CRC Error in BOOT sector of flash	Replace the motherboard. See the section Disassembling/ reassembling the motherboard (printers with scanner) or Disassembling/reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).
2x **O**	**X**	**X**	**X**	**X**	Firmware not present	Proceed with forced loading of the firmware.
5x **O**	**X**	**X**	**X**	**X**	External SRAM Test failed	Replace the motherboard. See the section Disassembling/ reassembling the motherboard (printers with scanner) or Disassembling/reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).
O	-	-	-	**X**	Time out SBI	• Replace the MICR board. See the section “Horizontal magnetic/MICR disassembly/ reassembly” on page 7 - 28. • Replace the MICR head. See the section “Horizontal magnetic/MICR printhead assy disassembly/reassembly” on page 7 - 30.
O	**O**	-	**X**	-	SW Setup - On the display (if present) appears the message «**WARNING Setup Software**». Inconsistency in printer configuration data (programming values) saved in the dedicated Flash EPROM area. The printer forces the default values for the firmware release.	• Press any key on the console, when appropriate, to display the next anomaly. • Check if the default values forced by the printer are the correct ones by printing the configuration data. See the section “Activating and deactivating the print test” on page 2 - 10. • Proceed with initialisation of the printer.
O	-	-	**X**	**X**	Character generator missing or corrupt	Proceed with forced loading of the firmware and of the character generator.

Console LED					Anomalies	Possible solution
ON	Ready	Station1	Local	Station 2		
O	-	X	-	-	Photosensor test failed	See the section "CALIBRATING THE PHOTOSENSORS" on page 4 - 18 for an indication of the defective photosensor.
O	-	X	-	X	Magnetic reset	Replace the horizontal magnetic or MICR interface card. See the section "Horizontal magnetic/MICR disassembly/reassembly" on page 7 - 28.
O	-	X	X	-	AFE scanner error	• Perform calibration of the scanner. See the section "Calibrating the scanner" on page 4 - 28. • Replace the CIS. See the sections: "CIS assy (upper scanner) disassembly/ reassembly" on page 7 - 33 and "CIS assy (lower scanner) disassembly/reassembly" on page 7 - 34.
O	O	X	X	X	Memory Maintenance - On the display (if present) appears the message «**WARNING Maintenance data**». Impossible to recover valid maintenance data from the dedicated Flash EPROM area. The maintenance data will be reinitialised with the value «0».	• Press any key on the console to display the next anomaly, when necessary. • Proceed with initialisation of the printer.
O	X	-	-	-	Service motor	See the section "Faults with document handling" on page 5 - 19.
O	X	-	-	X	Paper jammed on insertion photosensors or photosensors dirty	See the section "PROCEDURE FOR CLEANING / REPLACING THE PHOTOSENSORS" on page 6 - 2.

Console LED					Anomalies	Possible solution
ON	Ready	Station1	Local	Station 2		
O	X	-	X	-	FPGA scanner error	• Perform calibration of the scanner. See the section "Calibrating the scanner" on page 4 - 28. • Replace the motherboard. See the section Disassembling/ reassembling the motherboard (printers with scanner).
O	X	O	X	X	HW Setup - On the display (if present) appears the message «**WARNING Setup Hardware**». Inconsistency of calibration values (photosensors, alignments etc). All the calibration values are initialised with their default values.	• Press any key on the console to display the next anomaly, when necessary. • Perform all the printer calibrations. See the section "PROGRAMMING AND CALIBRATION" on page 4 - 1. • Replace the motherboard. See the section Disassembling/ reassembling the motherboard (printers with scanner) or Disassembling/reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).
O	X	X	-	-	Carriage motor	See the section "Faults during writing of the document" on page 5 - 17.
O	X	X	-	X	Scanner STATIC RAM error	Replace the motherboard. See the section Disassembling/ reassembling the motherboard (printers with scanner).
O	X	X	X	-	Scanner DYNAMIC RAM error	Replace the motherboard. See the section Disassembling/ reassembling the motherboard (printers with scanner).
O	X	-	X	X	Perform the scanner calibration - On the display (if present) the message appears «**Make SCANNER Calibration**».	• Press any key on the console to display the next anomaly, when necessary. • Perform calibration of the scanner. See the section "Calibrating the scanner" on page 4 - 28.
O	O	O	-	O	PTC power unit not working	Replace the power unit. See the section "Power supply unit disassembly/reassembly" on page 7 - 26.

Console LED					Anomalies	Possible solution
ON	Ready	Station1	Local	Station 2		
O	O	O	O	-	NTC motherboard not working - Anomaly on motherboard	Replace the motherboard. See the section Disassembling/ reassembling the motherboard (printers with scanner) or Disassembling/reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).
O	-	O	O	O	Start of CIS functional tests.	
O	O	O	O	O	Start of auto-diagnostic cycle on powering on.	
O	-	-	-	-	End of auto-diagnostic cycle on powering on.	

O =LED ON
- = LED OFF
X = LED FLASHING (Number X indicates the number of flashes).

DISPLAY MESSAGES

The following table lists the messages of state, warning and error that can be visualized on the display of the console, when the printer is equipped with alphanumeric display.

Power on messages

MESSAGE	*TIME OUT*	*DESCRIPTION*
Olivetti PR2 PLUS	No timeout	Startup message
Start Up COVER OPEN	No timeout	Startup condition. Means please close cover for continue.
RS232 Error	1 second	Serial channel (parity, framing, overrun).
ERROR RFID Time Out	10 seconds	RFID module.
ERROR SBI Time Out	10 seconds	SBI (serial BUS vs MICR Option) • Replace the MICR board. See the section “Horizontal magnetic/MICR disassembly/reassembly” on page 7 - 28 • Replace the MICR head. See the section “Horizontal magnetic/MICR printhead assy disassembly/reassembly” on page 7 - 30.
WARNING Setup Software	No timeout	Inconsistency in printer configuration data (programming values) saved in the dedicated Flash EPROM area. The printer forces the default values for the firmware release. • Press any key on the console, when appropriate, to display the next anomaly. • Check if the default values forced by the printer are the correct ones by printing the configuration data. See the section “Activating and deactivating the print test” on page 2 - 10 • Proceed with initialisation of the printer.
WARNING Setup Hardware	No timeout	Inconsistency of calibration values (photosensors, alignments etc). All the calibration values are initialised with their default values. • Press any key on the console to display the next anomaly, when necessary. • Perform all the printer calibrations. See the section “PROGRAMMING AND CALIBRATION” on page 4 - 1 • Replace the motherboard. See the section Disassembling/ reassembling the motherboard (printers with scanner) or Disassembling/reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx).
WARNING Mainten. Data	No timeout	Memory Maintenance data area corrupted. Impossible to recover valid maintenance data from the dedicated Flash EPROM area. The maintenance data will be reinitialised with the value «0».
ERROR Characters Gen.	No timeout	Character generator missing or corrupt Proceed with forced loading of the firmware and of the character generator.

MESSAGE	TIME OUT	DESCRIPTION
ERROR Magnetic Reset	No timeout	Horizontal magnetic or MICR module error on reset sequence Replace the horizontal magnetic or MICR interface card. See the section “Horizontal magnetic/MICR disassembly/reassembly” on page 7 - 28.
ERROR Motor Carriage	No timeout	Motor carriage reset error See the section “Faults with document handling” on page 5 - 19.
Scanner error FPGA LOAD	No timeout	Error on programming FPGA scanner. • Perform calibration of the scanner. See the section “Calibrating the scanner” on page 4 - 28 • Replace the motherboard. See the section “Disassembling/ reassembling the motherboard (printers with scanner)” on page 7 - 21.
Scanner error AFE TALK	No timeout	Analog Front End seria comunication error • Perform calibration of the scanner. See the section “Calibrating the scanner” on page 4 - 28 • Replace the CIS. See the sections: “CIS assy (upper scanner) disassembly/reassembly” on page 7 - 33 and “CIS assy (lower scanner) disassembly/reassembly” on page 7 - 34.
Scanner error STATIC RAM	No timeout	Static RAM error scanner. Replace the motherboard. See the section “Disassembling/ reassembling the motherboard (printers with scanner)” on page 7 - 21.
Scanner error DYNAMIC RAM	No timeout	Dynamic RAM error scanner. Replace the motherboard. See the section “Disassembling/ reassembling the motherboard (printers with scanner)” on page 7 - 21.
Make SCANNER Calibration	No timeout	Adjustment scanner area corrupted or not valid. Perform the scanner calibration. • Press any key on the console to display the next anomaly, when necessary. • Perform calibration of the scanner. See the section “Calibrating the scanner” on page 4 - 28.

Status messages running

MESSAGE	*TIME OUT*	*DESCRIPTION*
WARNING HEAD HOT	No timeout	Hot temperature on Print Haed.
WARNING PWS HOT	No timeout	Hot temperature on Power Supply.
WARNING HEAD + PWS HOT	No timeout	Hot temperature on Print Haed & Power Supply.
WARNING MB HOT	No timeout	Hot temperature on Mother Board.
WARNING MB + HEAD HOT	No timeout	Hot temperature on Mother Board & Print Haed.
WARNING MB + PWS HOT	No timeout	Hot temperature on Mother Board & Power Supply.
WARNING MB + PWS + HEAD HOT	No timeout	Hot temperature on Mother Board & Power Supply & Print Haed.
WARNING PWS COLD	No timeout	Low temperature on Power Supply means error on hw circuit.
WARNING MB COLD	No timeout	Low temperature on Mother Board means error on hw circuit.
OnLine	No timeout	On line status.
OnLine (DEBUG)	No timeout	On line with debug option.
Local	No timeout	Local status.
Local (DEGBUG)	No timeout	Local status with debug option.
Local COVER OPEN	No timeout	Cover open.
OnLine LOAD PAPER	No timeout	Waiting for paper status.
OnLine PAPAER Ejected	No timeout	Signal that the paper is ejected.
OnLine PAPER Insertion	No timeout	Signal that the paper is aligned.
OnLine PAPER PRESENT	No timeout	Signal that the paper is inserted.
OnLine Printing Data...	2 seconds	Signal that is processing data.
OnLine Magnetic READ	No timeout	Magnetic operation (read).
OnLine Magnetic WRITE	No timeout	Magnetic operation (write).
OnLine Magnetic ERASE	No timeout	Magnetic operation (erase).

MESSAGE	*TIME OUT*	*DESCRIPTION*
OnLine RFID READ	No timeout	RFID operatione (read).
OnLine RFID WRITE	No timeout	RFID operatione (write).
OnLine RFID ERASE	No timeout	RFID operatione (erase).
OnLine MICR READ	No timeout	MICR operation (read).
OnLine MARKER READ	No timeout	Marker operation
OnLine Scanning image..	No timeout	Scan processing image.
OnLine Paper JAM	No timeout	Paper jam status.

Service messages

MESSAGGIO	*TIME OUT*	*DESCRIPTION*
BOURRAGE ERROR	-	Paper jam error
DEBUG HARDWARE	-	Hardware debug.
PHOTO ERROR	-	Photo alignement error.
BOURRAGE	-	Printer jam.
Press Local/ST1	-	These messages are visualized during the printer configuration procedure.
KEY ST2 to EXIT	-	
SET UP	-	
Wait	-	Waiting message during printer operatione
Download active..	-	Firmaware download operation in course.
Download MICR	-	MICR module firmware update.
Selftest	-	This message is visualized during the printer selftest.
Scanner error	-	Scanner error.
SCANNER: 300 dpi	-	Scanner configuration.
SCANNER: 600 dpi	-	

A technique for carrying out the operation is described below that may guide the less expert service engineer.

The operator who has detected a malfunction is able to provide information about operating status and the error signals output by the printer when the fault occurred.

Repetition of the fault, where possible, may make it easier to trace the problem.

For diagnostic purposes, it is important to check whether the fault is repetitive or occasional.

Operating condition analysis

Working environment

- Certain problems may be caused by the environment if this is too cold, hot or damp.
- The machine must not be positioned close to air conditioning system outlets or exposed to the rays of the sun.
- Check that the internal ventilation slots are not obstructed especially if the printer is installed in a cabinet.
- Certain forms, documents or office accessories placed close to the machine may reduce internal ventilation with consequent overheating.
- Avoid leaving on the cover or in the vicinity of the printer, staples, elastic bands or other small objects that could be sucked inside.

Accessories and forms

- Check that the accessories fitted on the machine are original and in good condition.
- Check that the documents inserted in the printer comply with machine specifications and are in good condition as described in the section “DOCUMENTS THAT CAN BE HANDLED BY THE BASIC MACHINE” on page 1 - 3.

Printer operating status

- Check for any dirt or paper and ink on inside parts of the machine that may affect the performance of the various devices.
- Check for any internal damage due to insertion of documents with paper-clips, metal staples, pins or sample holders.
- Check lubrication of all parts for which this is prescribed. See the section “LUBRICATION” on page 6 - 1.

Identifying the problem

Examining all the information gathered (from the Operator, printer error signals, analysis of documents on which the fault has been encountered, repetition of the error when the machine is started, etc.), trace and isolate the problem that has occurred on the machine and which must be eliminated.

In some cases, the fault may be caused by more than one problem: it is important therefore to separate the various problems and deal with these one by one.

Tracing the cause

According to your experience, and referring to information provided in this chapter, follow a logical path to trace the fault, from the most likely cause to the most remote possibility, until you have identified the faulty part.

Eliminating the fault

Carry out the repair so that the machine can perform all its functions.

Testing the machine

Once the machine has been repaired, carry out a general cleaning and complete test of the machine possibly with the Operator present, to check that the problem has been eliminated and that no other faults have occurred.

FAULT CLASSIFICATION

To simplify the tracing of faults, these have been divided into:

- Faults at power-on;
- Faults during writing of the document;
- Faults with document handling.

The most frequent faults encountered and possible remedies are listed for each assy.

The classifications provided cannot cover all the faults that may occur; if the fault is not amongst those classified, it may be useful to refer to the description of a similar fault.

Faults at power-on

Fault				***Possible cause***	***Solution***
The machine does not switch on	***The machine does not connect with the system***	***The self-test indicates a fault on the Motherboard***	***The self-text indicates an error in the mechanics***		
X				Mains voltage absent/incorrect	Check the presence and specifications of the voltage supply
X				Mains cable damaged	Replace the power cable
X				Mains cable only partially inserted	Check the connection of the power cable
X				Fuse blown	Replace the fuse.
X				Fault in the power supply unit	Replace the power board. See the section “Power supply unit disassembly/ reassembly” on page 7 - 26
	X		**X**	Motherboard fault	Replace the motherboard. See the section “Disassembling/reassembling the motherboard (printers with scanner)” on page 7 - 21 or “Disassembling/ reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx)” on page 7 - 23
		X		Fault in the front photosensors	Carry out the calibration procedure. See the section“CALIBRATING THE PHOTOSENSORS” on page 4 - 18
		X		Fault in the carriage photosensor	Carry out the calibration procedure. See the section “CALIBRATING THE PHOTOSENSORS” on page 4 - 18
		X		Machine cover open	Check that the cover is closed correctly.
		X		Document jammed in machine	Remove the document. See the section “PAPER JAM” on page 3 - 11

Fault				Possible cause	Solution
The machine does not switch on	The machine does not connect with the system	The self-test indicates a fault on the Motherboard	The self-text indicates an error in the mechanics		
		X		Paper fragments left in the printer	Perform cleaning of the printer. See the section “Cleaning the paper paths” on page 6 - 1
			X	Problems on interface connections	Replace the motherboard. See the section “Disassembling/reassembling the motherboard (printers with scanner)” on page 7 - 21 or “Disassembling/ reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx)” on page 7 - 23
			X	Line problems on the interface	Replace the motherboard. See the section “Disassembling/reassembling the motherboard (printers with scanner)” on page 7 - 21 or “Disassembling/ reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx)” on page 7 - 23
			X	Incorrect set-up	Check the settings of the operation parameters. See the section “CONFIGURING THE OPERATION PARAMETERS” on page 4 - 1

Faults during writing of the document

Fault						*Possible cause*	*Solution*
The machine does not switch on	*The machine does not connect with the system*	*The self-test indicates a fault on the Motherboard*	*The self-text indicates an error in the mechanics*	*The machine does not switch on*	*The machine does not connect with the system*		
X	X					Ribbon cartridge missing	Insert a ribbon cartridge. See “Installing the ribbon cartridge” on page 2 - 6
	X					Ribbon to be replaced (out)	Replace the ribbon cartridge. See “REPLACING THE RIBBON CARTRIDGE” on page 3 - 8
X	X		X			Ribbon cartridge not inserted correctly	Check how the ribbon cartridge is installed.
X					X	Irregular movement of the carriage	Check the carriage. See “Replacement and adjustment of belt for carriage movement” on page 6 - 15
X	X		X	X		Closing levers open	Lower the lever for closure.
X			X			Printhead fault	Replace the printhead. See “Printhead disassembly/reassembly” on page 7 - 10
X				X	X	Paper photosensor fault	**1** Carry out the calibration procedure. See “CALIBRATING THE PHOTOSENSORS” on page 4 - 18 **2** Clean and, if necessary, replace the defective photosensor. See “PROCEDURE FOR CLEANING / REPLACING THE PHOTOSENSORS” on page 6 - 2
X			X	X	X	Printhead flat cable fault	Replace the flat cable. See the section “Printhead flat cable disassembly/ reassembly” on page 7 - 8
X					X	Transport motor fault	Replace the transport motor. See “Services motor disassembly/reassembly” on page 7 - 14
X			X			Motherboard fault	Replace the motherboard. See “Disassembling/reassembling the motherboard (printers with scanner)” on page 7 - 21 or “Disassembling/ reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx)” on page 7 - 23
X	X	X	X			Adjustment of needle roller incorrect	See “Adjusting the roller gears” on page 6 - 9

Fault						Possible cause	Solution
The machine does not switch on	The machine does not connect with the system	The self-test indicates a fault on the Motherboard	The self-text indicates an error in the mechanics	The machine does not switch on	The machine does not connect with the system		
X				X	X	Paper photosensor not adjusted correctly	See “Adjusting Paper Photosensor” on page 6 - 8
X	X					Print bar not adjusted correctly	See “Adjusting the roller gears” on page 6 - 9
				X	X	Wrong configuration parameters	Reprogram the parameters of the printer. See “Modifying configuration parameters” on page 4 - 2
				X		Document driving belt not correctly adjusted	See “Adjusting the document drive belt” on page 6 - 3
				X		Band not adjusted	Adjust the printing band. See “Adjusting the roller gears” on page 6 - 9
				X		Roller gears not adjusted	Adjust the gears. See “Adjusting the roller gears” on page 6 - 9
				X		Front pressure rollers not adjusted correctly.	Adjust the pressers of the front rollers. “Adjusting the front pressure rollers” on page 6 - 10
				X	X	Carriage belt not calibrated	Adjust the belt for carriage movement. See “Replacement and adjustment of belt for carriage movement” on page 6 - 15
				X	X	Rear roller motor not working	Replace the motor. See “Disassembling/ reassembling pressure roller unit” on page 7 - 20

Faults with document handling

Fault				*Possible cause*	*Solution*
The machine does not introduce/eject the document	*The document is fed crookedly*	*The document iswrinkled*	*The document has irregular line feeds*		
X	X	X	X	Document not acc. to specs	Check the dimensions and the type of the document . See "DOCUMENTS THAT CAN BE HANDLED BY THE BASIC MACHINE" on page 1 - 3
X	X	X	X	Document ruined	Use another document.
	X	X	X	Closing levers open	Lower the lever for closure.
X	X			Front photosensors fault	**1** Carry out the calibration procedure. See the section "CALIBRATING THE PHOTOSENSORS" on page 4 - 18 **2** Clean and if necessary replace the fault photosensor. See "PROCEDURE FOR CLEANING / REPLACING THE PHOTOSENSORS" on page 6 - 2
X				Paper photosensor fault	**1** Adjust the sensor position. See the section "Adjusting Paper Photosensor" on page 6 - 8 **2** Carry out the calibration procedure. See "CALIBRATING THE PHOTOSENSORS" on page 4 - 18 **3** Clean and if necessary replace the fault photosensor. See "PROCEDURE FOR CLEANING / REPLACING THE PHOTOSENSORS" on page 6 - 2
X				Service motor fault	Replace the services motor. See the section "Services motor disassembly/reassembly" on page 7 - 14
X			X	Paper feed motor fault	Replace the paper feed motor. See "Paper feed motor disassembly/reassembly" on page 7 - 12
		X		Adjustment of needle roller incorrect	See "Adjusting the roller gears" on page 6 - 9
		X		Print bar not adjusted correctly	See "Adjusting the print bar (where torsion bar present)" on page 6 - 4 or "Adjusting the print bar (where torsion bar absent)" on page 6 - 5
		X		Band not adjusted	Adjust the printing band. See "Adjusting the print bar parallelism and leaf spring load on the basic machine" on page 6 - 6 or "Adjusting parallelism of print bar (without torsion bar)" on page 6 - 7
			X	Roller gears not adjusted	Adjust the gears. See "Adjusting the roller gears" on page 6 - 9

Fault				Possible cause	Solution
The machine does not introduce/eject the document	The document is fed crookedly	The document iswrinkled	The document has irregular line feeds		
X	X		X	Front pressure rollers not adjusted correctly.	Adjust the pressers of the front rollers. See “Adjusting the front pressure rollers” on page 6 - 10
		X		Rear roller motor not working	Replace the motor. See “Disassembling/reassembling pressure roller unit” on page 7 - 20

Chapter 6 - MAINTENANCE

This chapter examines the cleaning and lubrication operations, and a number of mechanical adjustments necessary for correct operation of the printer.

CLEANING

For correct functioning of the printer, it is suggested to clean parts of the machine periodically and after each servicing.

Cleaning the case

Switch off the printer, disconnect it from the power outlet and clean the case with a damp cloth; do not use corrosive substances such as solvents, alcohol, benzene or products with abrasive components.

Cleaning the paper paths

Clean all paper paths including the paper feed rollers of the insertion slot, taking care to remove any scraps of ribbon or paper that may be deposited on parts and also any foreign objects.

LUBRICATION

Although operations for restoring the lubrication and grease levels are not normally required during the life-time of the printer, it is nevertheless the responsibility of the field technician during every service intervention to check them. When it is necessary to replace mechanical parts that were originally greased, proceed applying a same level of grease.

The only points that may require restoration of lubrication (with oil) are:

- Print carriage sliding shaft
- Carriage felt.

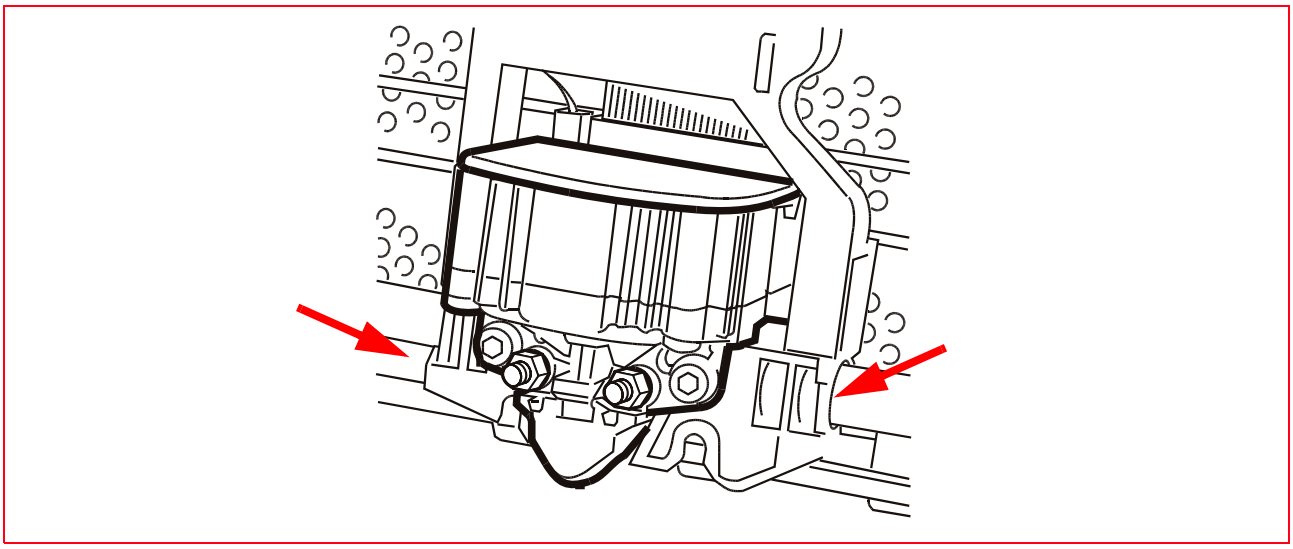


Figure 6 - 1 Position of points to lubricate

PROCEDURE FOR CLEANING / REPLACING THE PHOTOSENSORS

Use a jet of compressed air from a spray can to blow accurately through the paper insertion slot to remove any dust from the photosensor units for document presence/alignment. After opening the upper structure, blow into the optical fibre zones, pointing the jet of air inside the paper passage area to remove any dust that may be present in the optical fibre nozzles.

To simplify consultation, each adjustment is divided into:

- **Machine status.** Describes the status of the printer required to make the adjustment;
- **Conditions to be checked.** Indicates the points, values and tolerances to be complied with for correct functioning of kinematics;
- **Procedure.** Lists the operations to be carried out to make the adjustment;
- **Notes.** Provide any references to adjustment sequences or checks.

Adjusting the document drive belt

- MACHINE STATUS
  Printer switched off and without casing
- CONDITIONS TO BE CHECKED
  Cogged belt **(1)** tensioned so as to obtain a deflection of 2.9 mm with a force of 200 g applied at the center of the span.
- PROCEDURE
  - Disassemble the mechanical unit. See the section “Mechanical assy disassembly/reassembly” on page 7 - 6.
  - Loosen the lock nuts of the motor (**2**).
  - Establish conditions required and tighten the nuts.

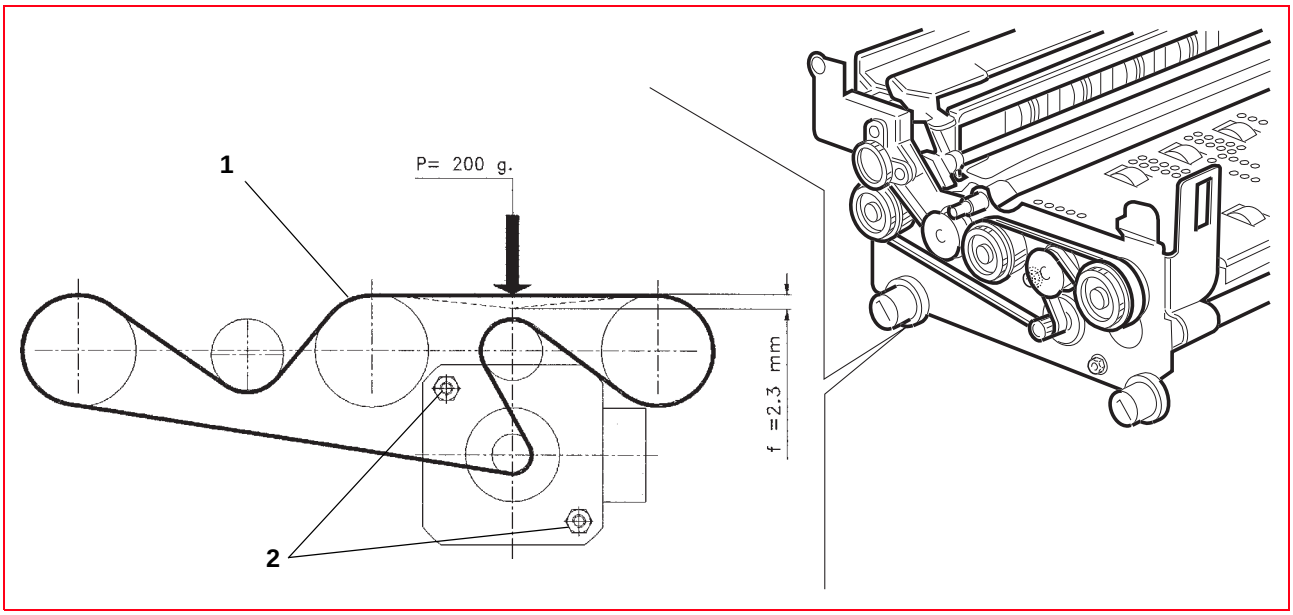


Figure 6 - 2 Adjusting the document drive belt

Adjusting the print bar (where torsion bar present)

- MACHINE STATUS
  - Printer switched off and without casing.
  - Printhead positioned co-axially with the axis of the screw used to make the adjustment.
- CONDITIONS TO BE CHECKED
  Distance of 0.4 - 0.5 mm between print bar **(2)** and feeler roller **(3)**.
- PROCEDURE
  - Disassemble the mechanical unit. See the section “Mechanical assy disassembly/reassembly” on page 7 - 6.
  - Bring the print unit to the writing position; then, using the two screws **(1)**, adjust the print bar **(2)** in contact with the feeler roller **(3)**, positioning the head **(4)** in axis with the screw.
  - Lift the print unit and move the print bar **(2)** up by 0.35 - 0.45 mm, operating on the screw **(1)** and checking movement with a comparator **(5)** positioned on the axis of the screw.
  - Repeat the operation on the other screw, from the opposite side of the structure.

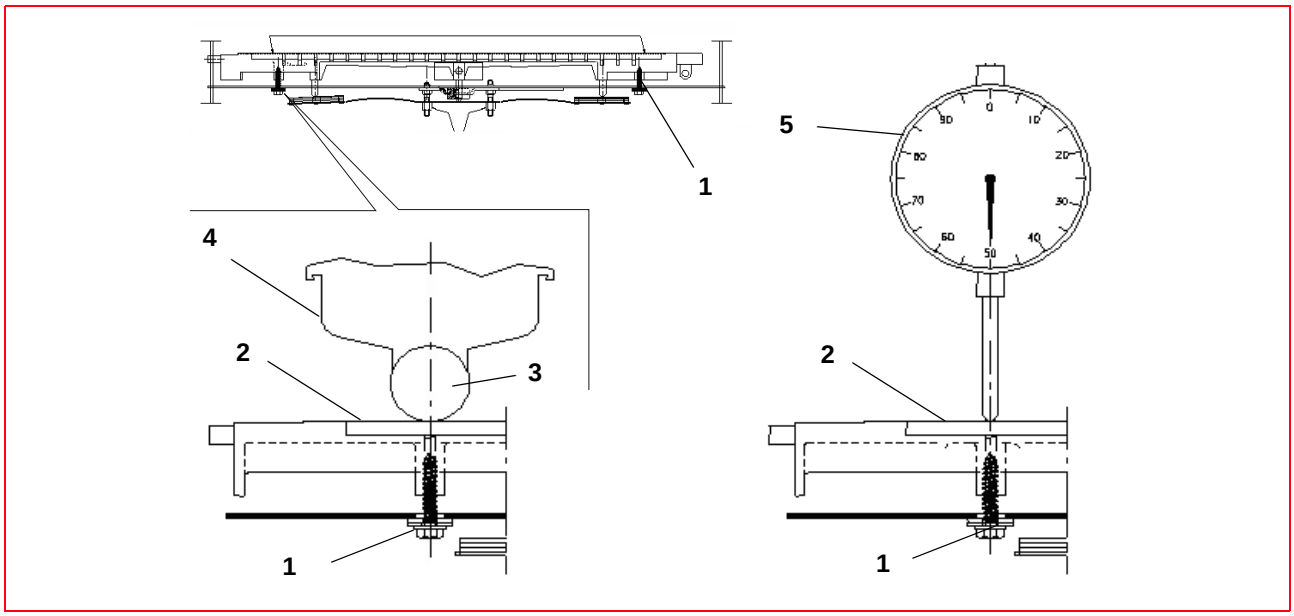


Figure 6 - 3 Adjusting the print bar

NOTE: check the print quality with OFF-LINE testing. See the section “Activating and deactivating the print test” on page 2 - 10.

Adjusting the print bar (where torsion bar absent)

- MACHINE STATUS
  - Printer switched off and without casing.
  - Printhead positioned co-axially with the axis of the screw used to make the adjustment.
- CONDITIONS TO BE CHECKED
  Distance of 0.4 - 0.5 mm between print bar **(2)** and feeler roller **(3)**.
- PROCEDURE
  - Disassemble the mechanical unit. See the section “Mechanical assy disassembly/reassembly” on page 7 - 6.
  - Bring the print unit to the writing position; then, using the four screws **(1)**, adjust the print bar **(2)** in contact with the feeler roller **(3)**, positioning the head **(4)** in axis with the screw.
  - Lift the print unit and move the print bar **(2)** up by 0.35 - 0.45 mm, operating on the two screws **(1)** and checking movement with a comparator **(5)** positioned on the axis of the screw.
  - Repeat the operation on the other two screws, from the opposite side of the structure.

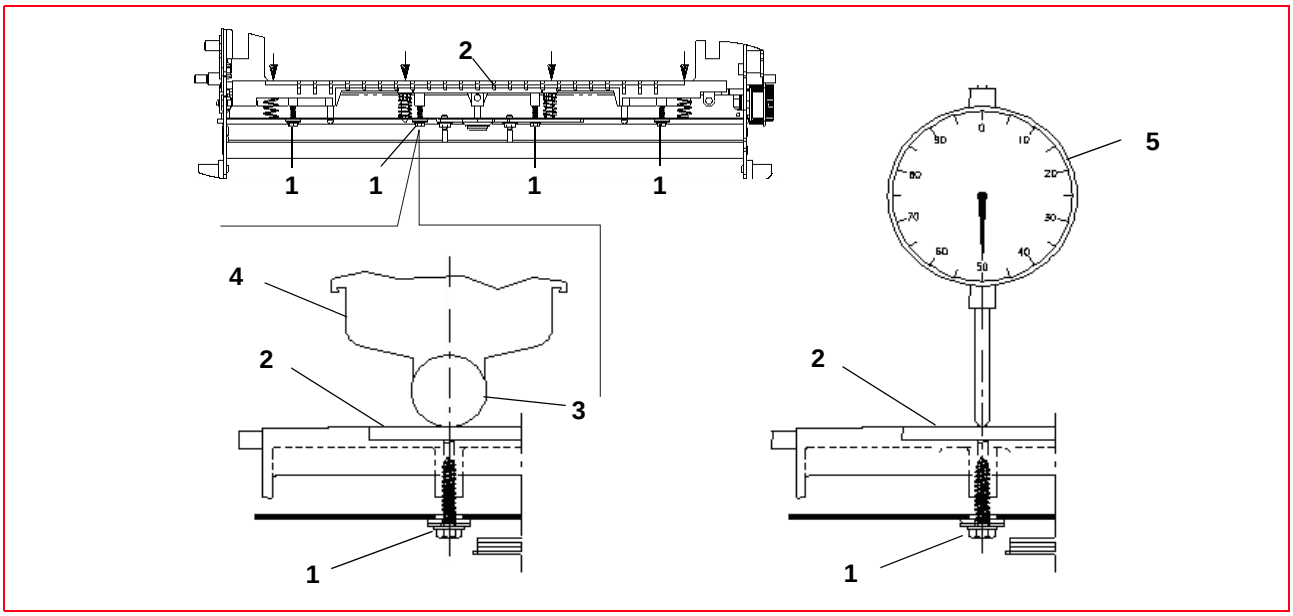


Figure 6 - 4 Adjusting the print bar

NOTE: check the print quality with OFF-LINE testing. See the section “Activating and deactivating the print test” on page 2 - 10.

Adjusting the print bar parallelism and leaf spring load on the basic machine

- MACHINE STATUS
  Printer switched off and without casing.
- CONDITIONS TO BE CHECKED
  Check print bar parallelism and leaf spring load.
- PROCEDURE
  - The bar perpendicularity adjustment lever **(1)** can be pre-regulated with tool code 9600303 according to drawing code 395130U.
  - For manual adjustment of head/print bar parallelism, back off the studs **(2)** and rotate in a counterclockwise direction to bring the bar close to the front part of the matrix; rotate in a clockwise direction to bring the bar close to the rear part of the matrix.
  - The parallelism indicator **(3)** can be used to check whether the corrections have been made.
  - To modify the load of the leaf spring, operate on the self-locking adjustment nuts (**4**).
  - Move the carriage completely to the left and, using a comparator, push the print bar close to the feeler roller with a dynamometer. A load of 350 g ± 20 g must correspond to a movement of 0.35 - 0.45 mm. Repeat the procedure on the right of the bar.

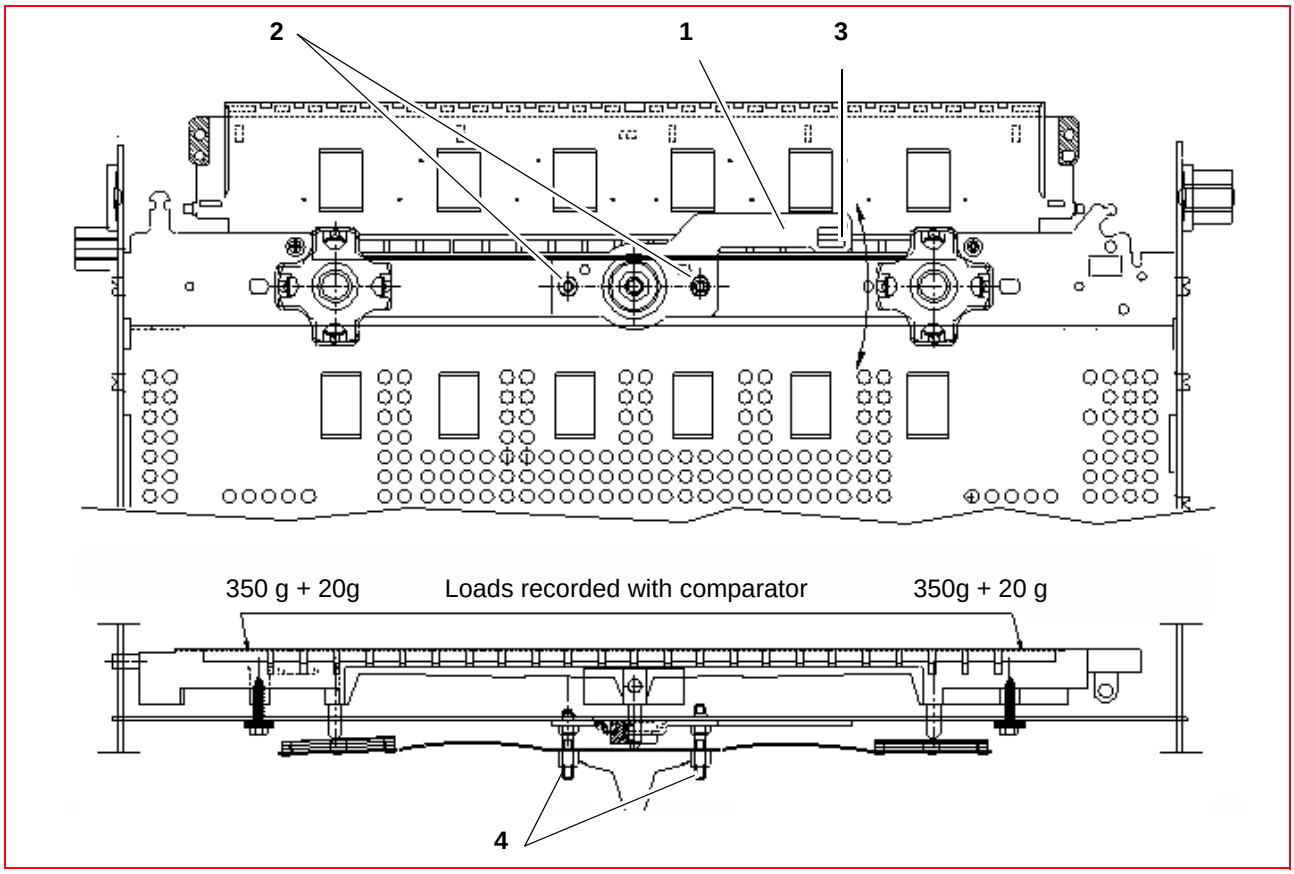


Figure 6 - 5 Adjusting the print bar parallelism

Adjusting parallelism of print bar (without torsion bar)

- MACHINE STATUS
  Printer switched off and without casing.
- CONDITIONS TO BE CHECKED
  Check print bar parallelism.
- PROCEDURE
  - The bar perpendicularity adjustment lever **(1)** can be pre-regulated with tool code 9600303 according to drawing code 395130U.
  - For manual adjustment of the parallelism between the head and the print bar, rotate studs **(2)** counter clockwise to move the bar close to the front of the matrix; rotate clockwise to move the bar to the rear of the matrix.
  - The parallelism indicator **(3)** can be used to check whether the corrections have been made.
  - Move the carriage completely to the left and, using a comparator, push the print bar close to the feeler roller with a dynamometer. A load of 350 g ± 20 g must correspond to a movement of 0.35 - 0.45 mm. Repeat the procedure on the right of the bar. Repeat the procedure for every adjustment screw of the bar.

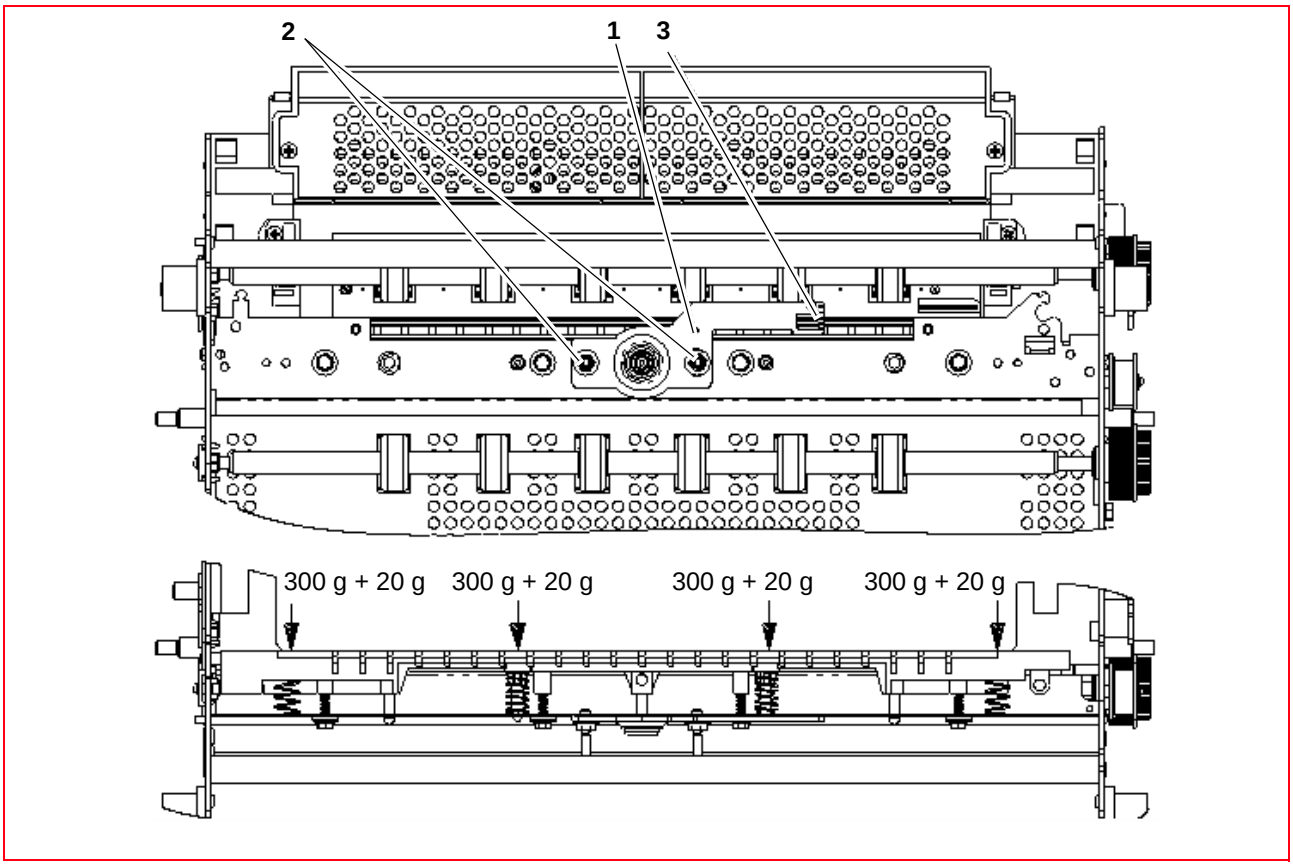


Figure 6 - 6 Adjusting parallelism of print bar

Adjusting Paper Photosensor

- MACHINE STATUS
  Printer switched off and without casing.
- CONDITIONS TO BE CHECKED
  Correct positioning of the paper photosensor on the printhead.
- PROCEDURE
  - Using the screw **(1)**, fix the photosensor **(2)** onto the printhead, maintaining it against the reference profile on the ribbon protection flap.
  - Make sure that the component rests on the whole width of the reference profile.

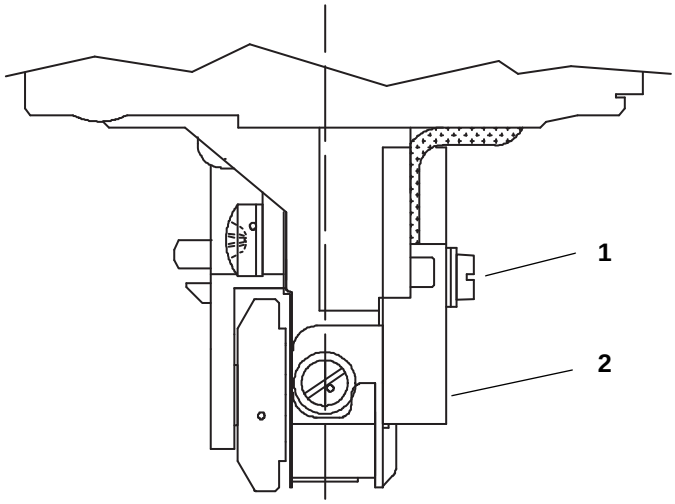


Figure 6 - 7 Adjusting Paper Photosensor

NOTE: make sure that the component rests on the whole width of the reference profile. Carry out this operation after adjusting the print bar. See the previous section.
When replacing the photosensor, perform the calibration. See the section “CALIBRATING THE PHOTOSENSORS” on page 4 - 18.

Adjusting the roller gears

- MACHINE STATUS
  - Printer switched off and without casing.
  - Upper part of the mechanism closed.
- CONDITIONS TO BE CHECKED
  Gearing between the sprocket wheels **(1)** and **(2)** with a maximum radial play between the teeth of 0.2 mm.
  Check for full rotation of wheels. Adjust the two couplings present on the right side of the printer.
- PROCEDURE
  Work on the bushing blocking screws **(3)**, tightening with a torque of 6 +0.5 Kgcm.

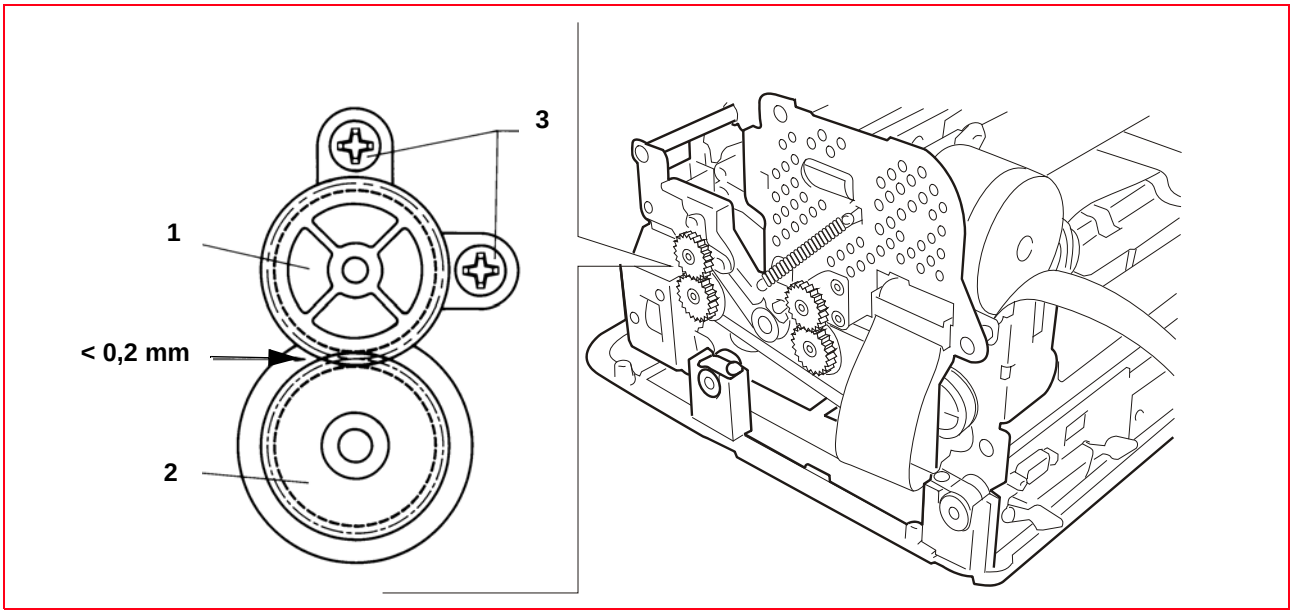


Figure 6 - 8 Adjusting the roller gears

NOTE: make this adjustment on both the gear pairs present on printer.

Adjusting the front pressure rollers

- MACHINE STATUS
  - Printer switched off and without casing.
  - Services cam with minimum lift zone facing towards the feeler roller.
- CONDITIONS TO BE CHECKED
  Check play between the pressure roller **(7)** and the services cam **(6)**.
- PROCEDURE
  - Insert a 0.5-mm thick probe **(1)** between the pressure **(7)** and drive **(8)** rollers.
  - Operating on the shaft (**2**), position the three levers **(3)** in contact with the springs
  - Insert the tool **(4)** on the central lever.
  - The pressure roller bridge **(5)** must be free to move into position without interference when in contact with the minimum radius of the cam **(6)**.
  - Torque the screw of the pressure roller bridge to 20 Kgcm holding the roller in contact with the minimum radius of the cam.
- Remove the probe and, without changing phasing, check for slight play between the roller and cam (without loading the springs). When the probe is inserted again, there must be no play.

I

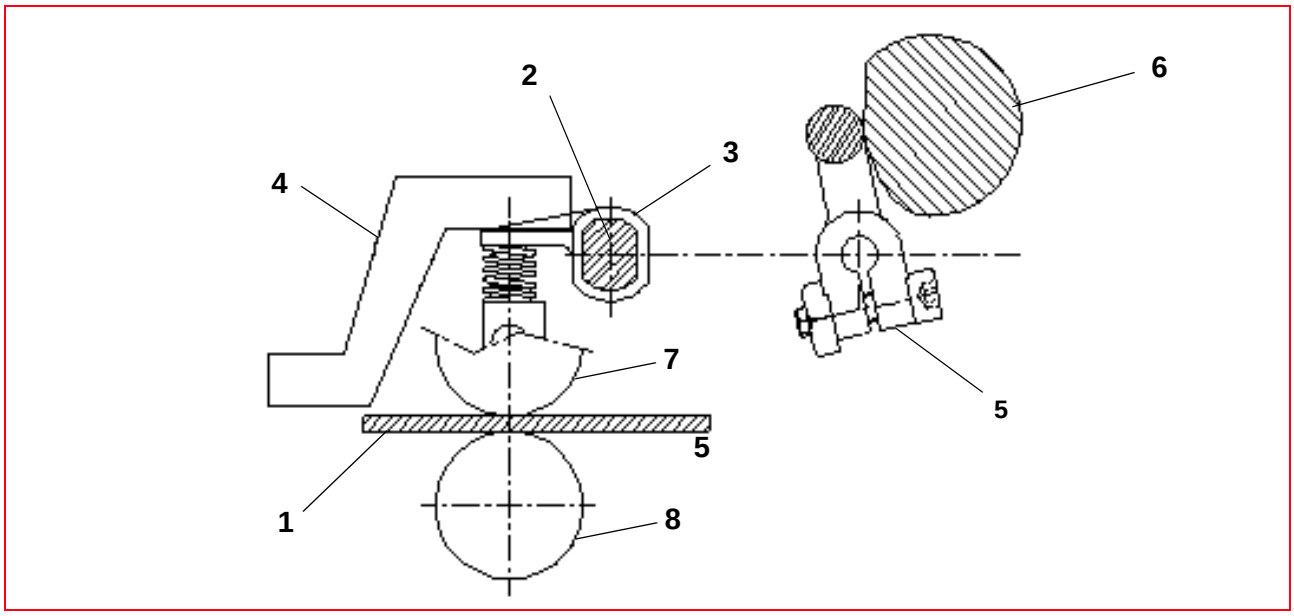


Figure 6 - 9 Adjusting the front pressure rollers

Adjusting the horizontal magnetic/MICR drive belt tension

- MACHINE STATUS
  - Printer switched off and without casing.
  - Read/write carriage in reset position (end of stroke motor side).
- CONDITIONS TO BE CHECKED
  Cogged belt **(1)** tensioned so as to obtain a deflection of 5 mm with a load of 60 g applied at the center of the stroke of the carriage. Make the recording with the carriage in the reset position (left-hand end of stroke - motor side).
- PROCEDURE
  Loosening the lock-screws, move the motor **(2)** until the conditions required are obtained and then tighten the screws.

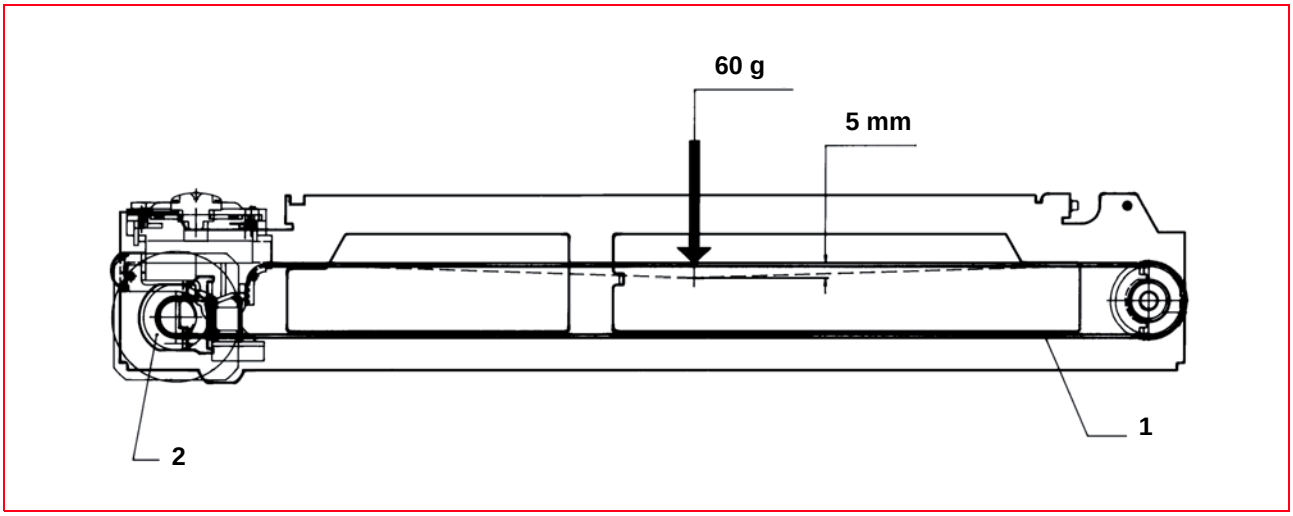


Figure 6 - 10 Adjusting the horizontal magnetic/micr drive belt tension

Adjusting the horizontal magnetic/MICR closing flap

- MACHINE STATUS
  - Printer switched off and without casing..
  - Read/write carriage in reset position (end of stroke motor side) and screw **(1)** which joins the semi tie-rods loosened.
- CONDITIONS TO BE CHECKED
  Co-planarity between the closing flap and the front surface of the structure.
- PROCEDURE
  Position the flap **(2)** in contact with the slot **(3)** operating in the compartment between the fork and toothing of the semi tie-rods **(4)**; then, tighten the screw **(1)**.

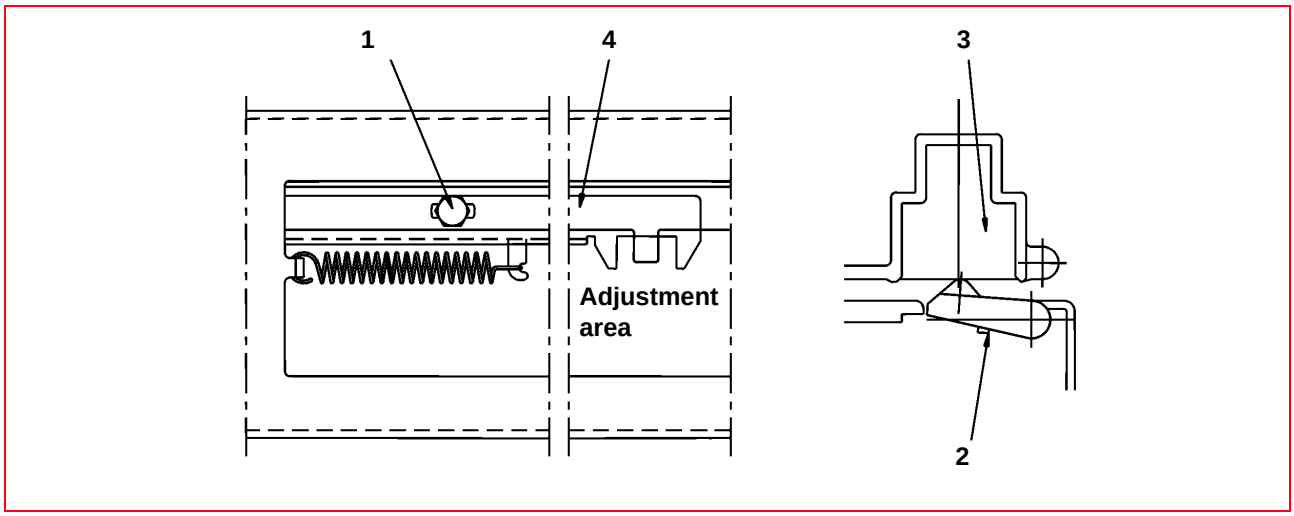


Figure 6 - 11 Adjusting the horizontal magnetic/MICR closing flap

Positioning the horizontal magnetic/MICR pressure roller

- MACHINE STATUS
  - Printer switched off and without casing.
  - Pin of the bridge **(4)** on its minimum radius.
    With regard to the above, position the pressure roller **(1) i**nside the conveyor **(2)** with a recess of 0.5-1 mm and, then phase the cam **(3)** so as to bring the pin of the bridge **(4)** on its minimum radius. With its screw **(5)** fasten the bridge on the shaft (check that the recess of the pressure roller is across the entire paper path).
- CONDITIONS TO BE CHECKED
  Pressure roller in work position.
- PROCEDURE
  Rotate the cam so as to bring the pin of the bridge **(4)** on its maximum radius; then check that with the pressure roller resting on the paper sliding surface, there is play in the coupling of point "A".

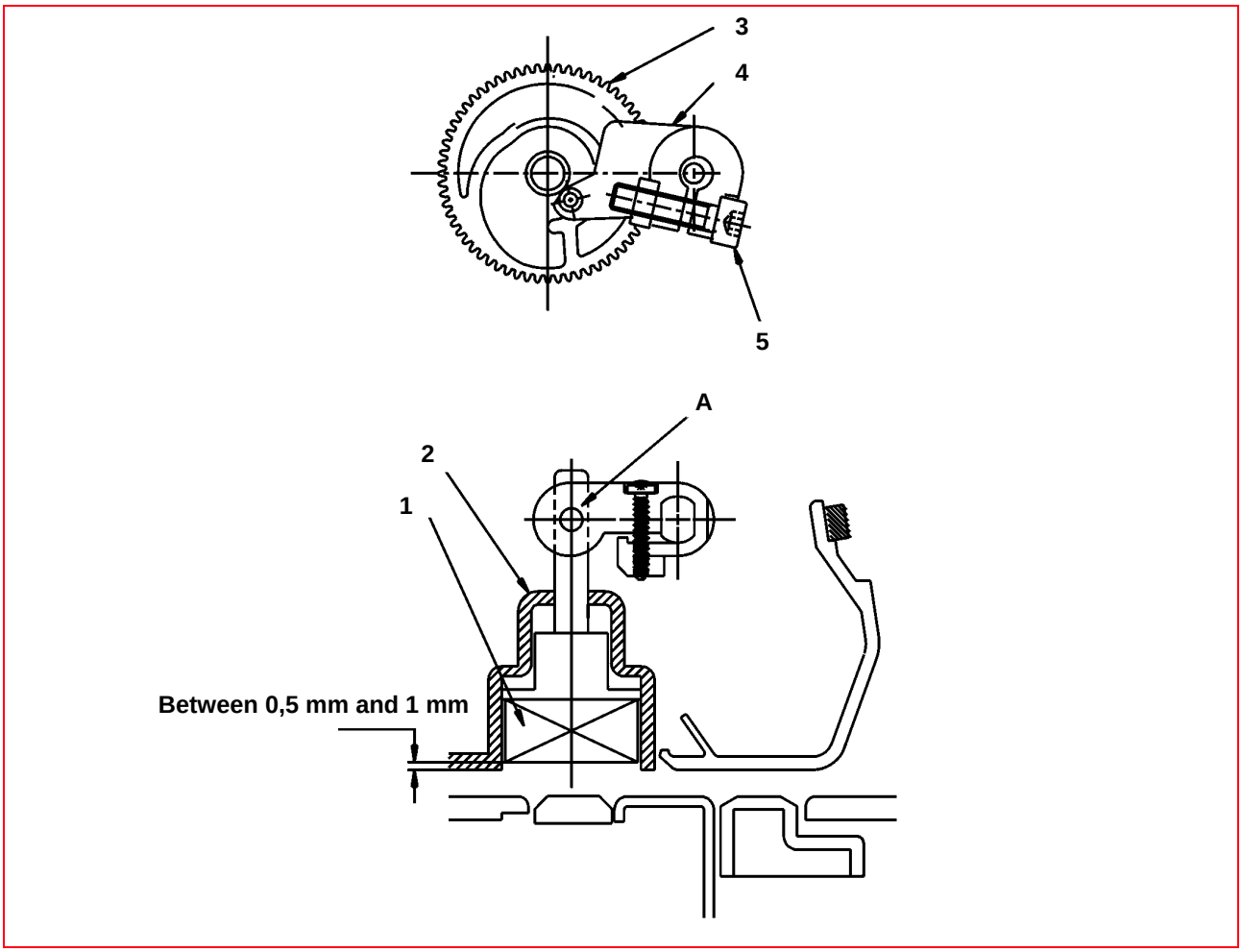


Figure 6 - 12 Positioning the horizontal magnetic/MICR pressure roller

Positioning the assy on the horizontal magnetic/MICR structure

- MACHINE STATUS
  Printer switched off and without casing.
- CONDITIONS TO BE CHECKED
  Co-planarity between the closing flap of the magnetic unit and the paper conveyor of the slot.
- PROCEDURE
  - Position the slots **(1)** in the half cut-outs **(2)** present on the sides of the machine.
  - Draw up the lock-screws slightly (**3**).
  - Push up the structure of the magnetic unit until it is in contact both to the right and left (against the paper conveyor).
  - Torque the lock-screws to 8 Kgcm.

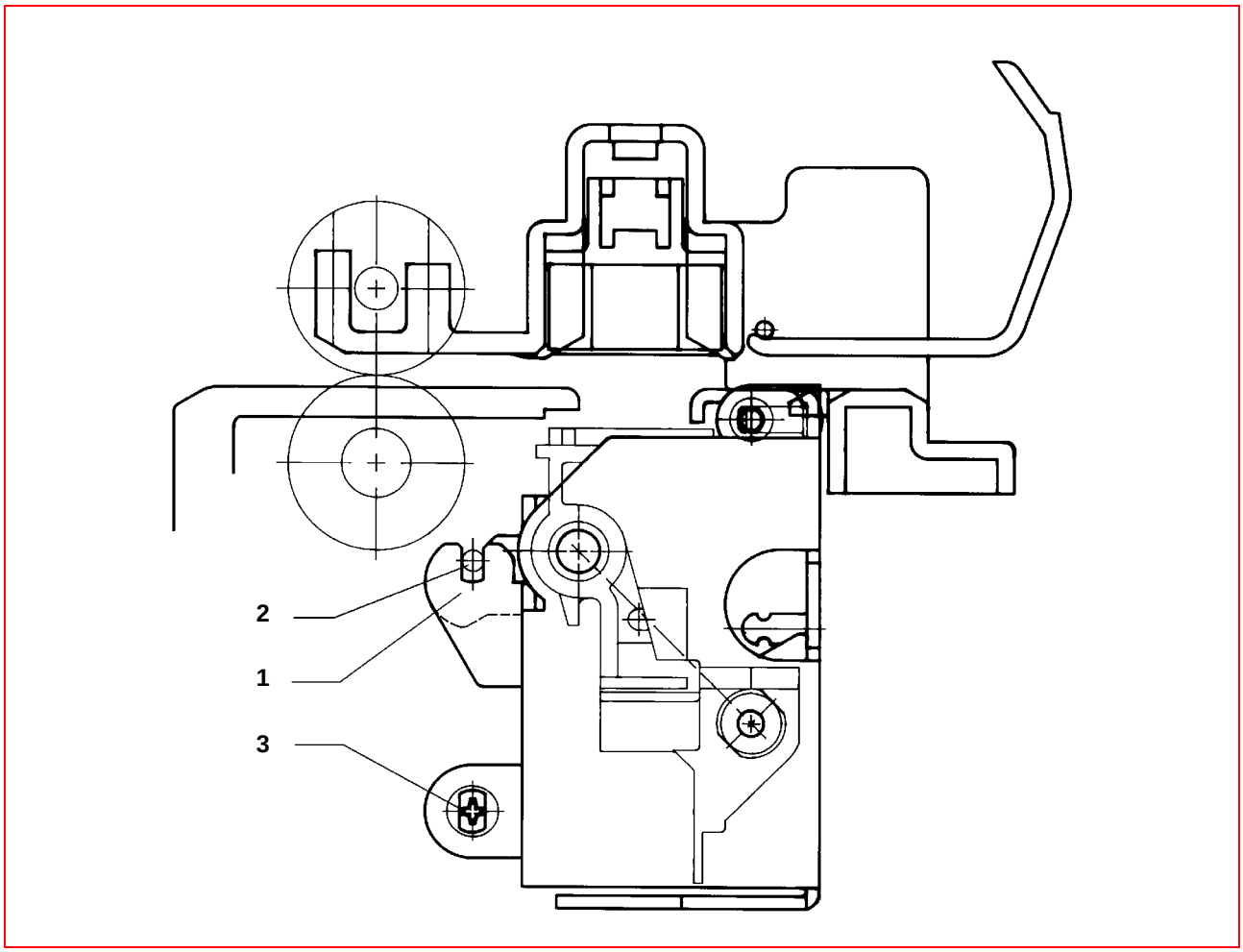


Figure 6 - 13 Positioning the assy on the horizontal magnetic/MICR structure

Replacement and adjustment of belt for carriage movement

- MACHINE STATUS
  Printer switched off and without casing.
- CONDITIONS TO BE CHECKED
  Idler pulley support slide pushed externally to the printer by tension spring.
- PROCEDURE
  - Loosen the screw **(1)**.
  - Check the sliding freedom of the slide.
  - If necessary, replace the belt.
  - Tighten the screw.

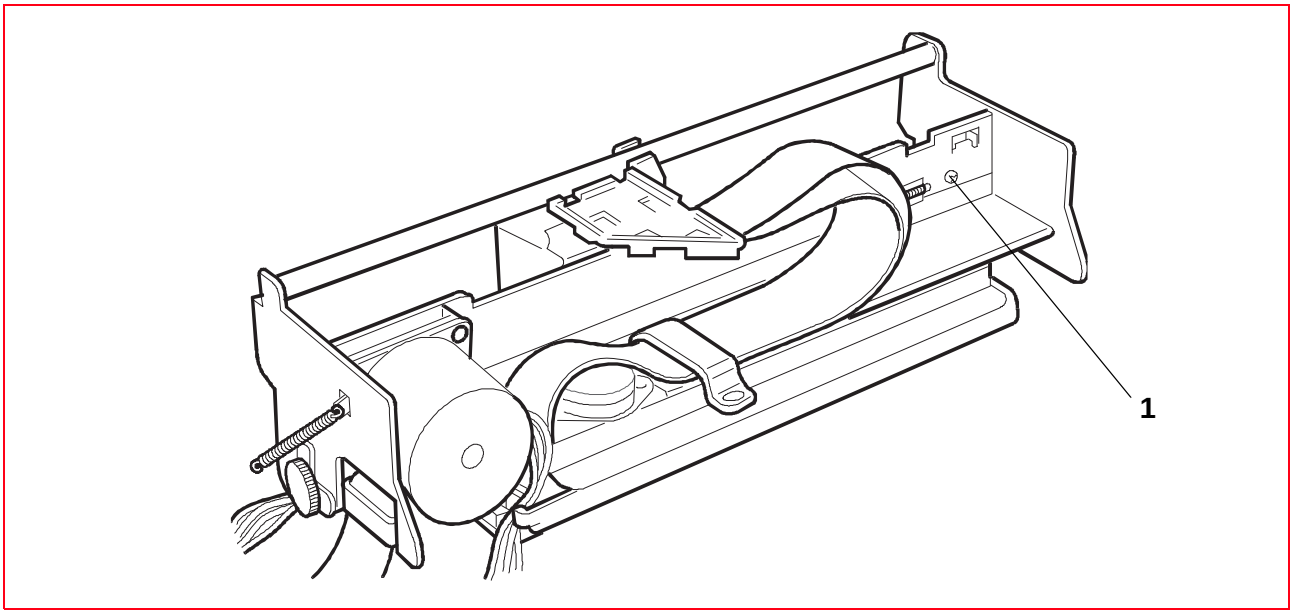


Figure 6 - 14 Replacement and adjustment of belt for carriage movement

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Chapter 7 - DISASSEMBLY/REASSEMBLY OF PARTS

In this chapter are described the procedures for disassembling/reassembling the main components of the printer.
Each removal operation is described as follows:

- Reference to any previous removal operations so as to reverse the disassembly procedure;
- Phases of the operation described in sequence;
- Notes: indicate any references to adjustments to be made after reassembly, warnings or prescriptions to be complied with.

PRELIMINARY WARNINGS

- For maximum safety, before carrying out any part disassembly operation, switch off the printer and disconnect it from the mains.
- Perform all the operations in a clean, free area.
- Follow the procedure carefully; do not remove parts that must not be disassembled.
- After replacing parts, check that these have not become misshapen during assembly; if necessary, restore initial conditions.
- Part reassembly operations must be carried out reversing the disassembly procedure.
- Make sure that all the connectors are correctly inserted. After the operation, relubricate where indicated.
- If the motherboard is replaced, update the firmware to the latest release (see the section “CONFIGURING THE OPERATION PARAMETERS” on page 4 - 1) and calibrate electro-mechanical parts from the console (see the section “CALIBRATING THE PHOTOSENSORS” on page 4 - 18).
- If the power supply unit is replaced, check that the mains voltage of the spare part matches the value indicated on the electrical data plate of the printer.
- On completion of the operation, carry out a test to check the printer for any malfunctions.

Console disassembly/reassembly

1. Open the top cover of the machine.
2. Back off the two lock-screws **(1)** and remove the cover of the flat cable.
3. Disconnect the flat cable **(2)** from the console.
4. Back off the four lock-screws **(3)** and remove the console from the cover.
5. Back off the four lock-screws **(4)** to separate the console **(5)** from the support.

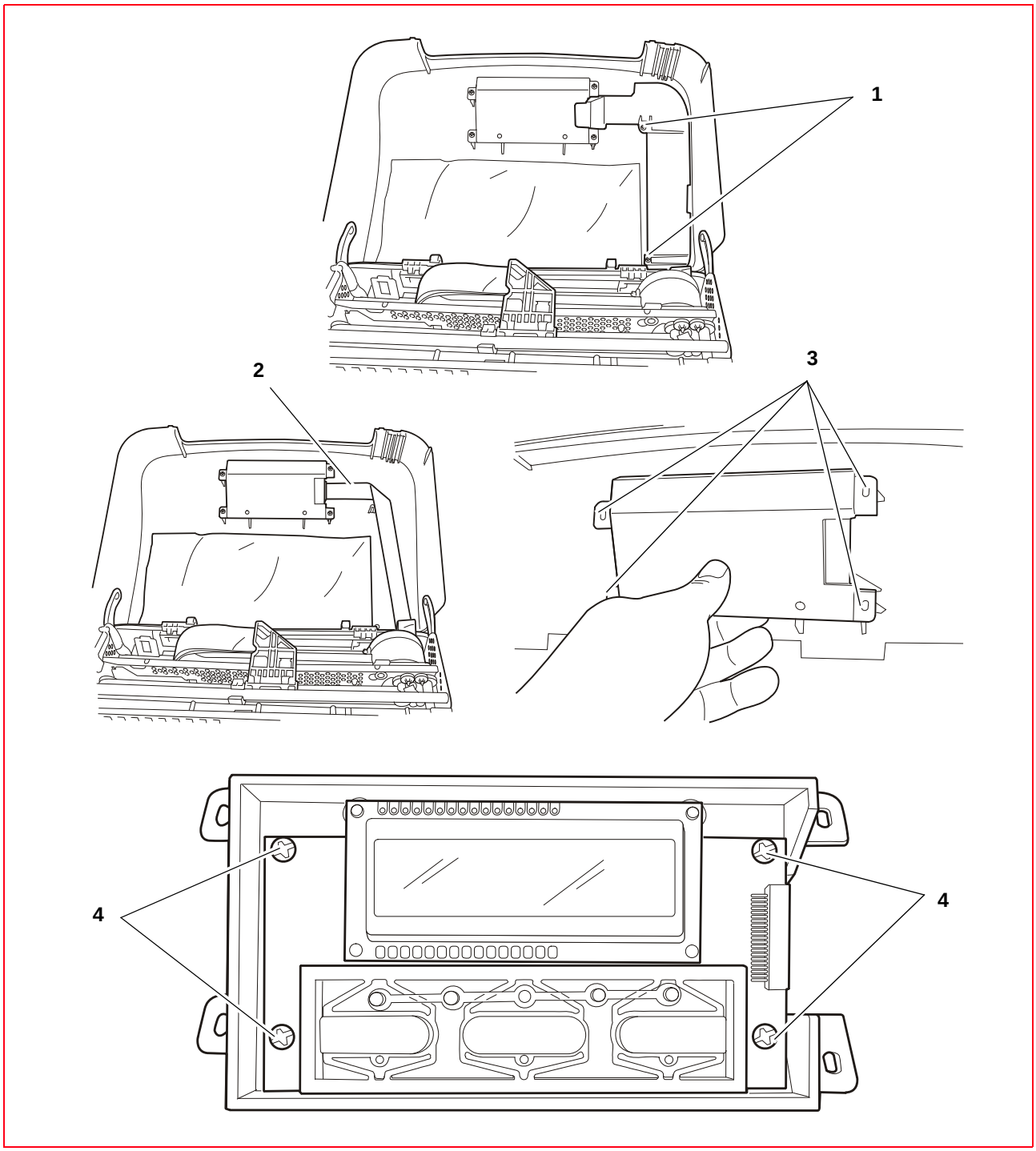


Figure 7 - 1 Disassembling the console

Top cover disassembly/reassembly

1. Open the top cover of the machine.
2. Disconnect the flat cable of the console, as explained in the previous paragraph.
3. Release the pins of the cover **(1)** from the guides.
4. Using a tool (for example, a screwdriver) exert pressure on the hinges **(2)** and extract the cover.

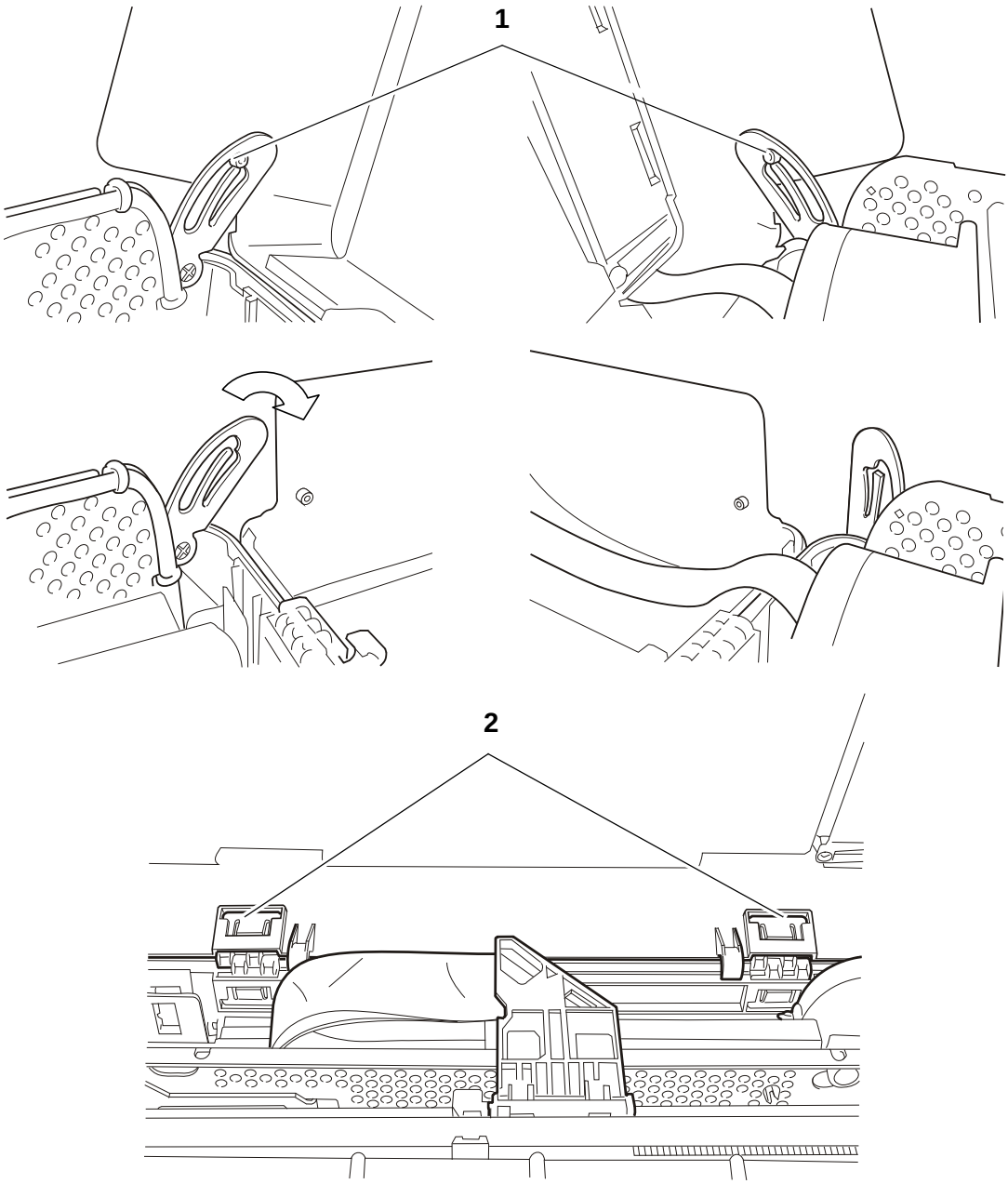


Figure 7 - 2 Disassembling the top cover

Casing disassembly/reassembly

1. Disassemble the upper cover.
   See the section “Top cover disassembly/reassembly” on page 7 - 3.
2. Release the pins **(1)** of the sound-absorbing material **(2)** and remove it.
3. Extract the front slot (3), pulling it carefully upwards and towards the front of the printer. Loosen the 4 screws that fix it to the case.
4. Using a pointed tool, exert pressure on the four points **(4)** of the casing as shown in the figure.

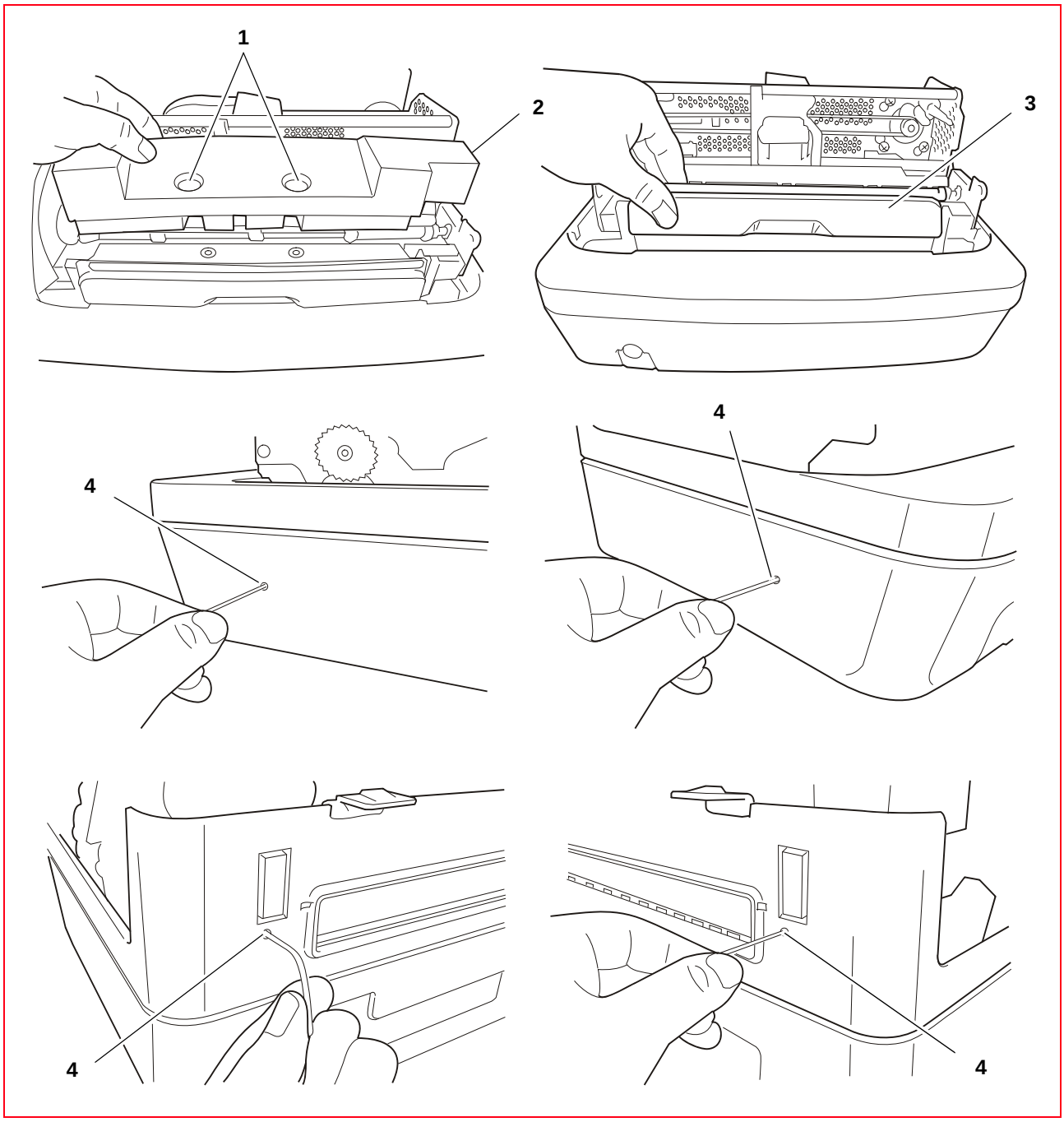


Figure 7 - 3 Disassembling the casing

5. Lift the casing and place it to the side of the machine, as shown in the figure.
6. Back off the two screws (5) of the cover open switch and remove it.

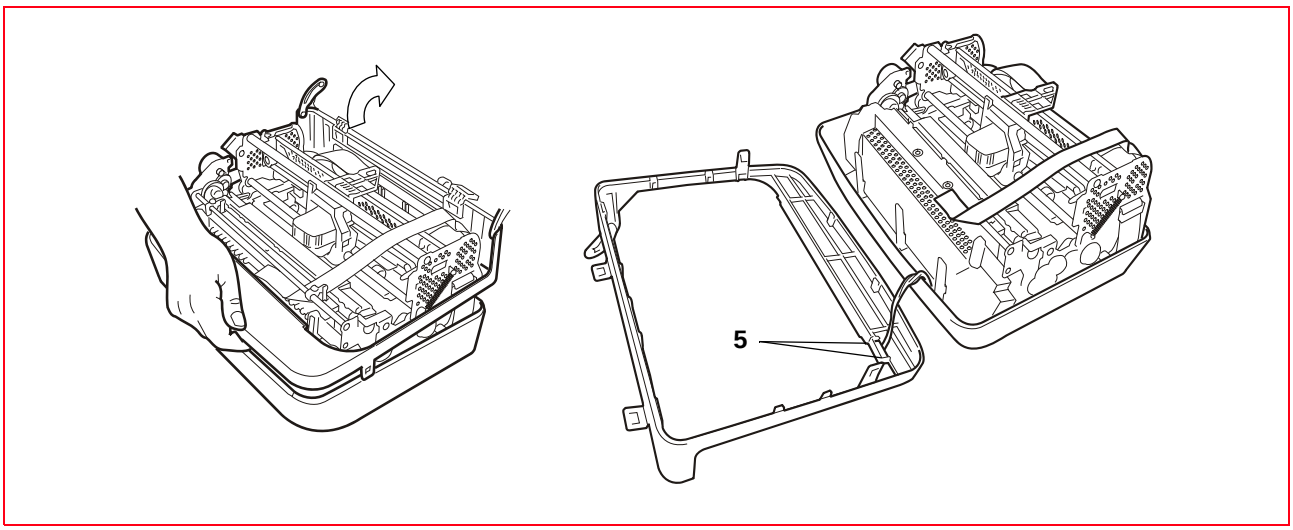


Figure 7 - 4 Removing the casing plate

7. Working from the lower side of the machine, back off the five lock-screws **(6)** of the baseplate.
8. Move the power supply switch **(7)** to the ON position.
9. Remove the base plate as shown in the figure.

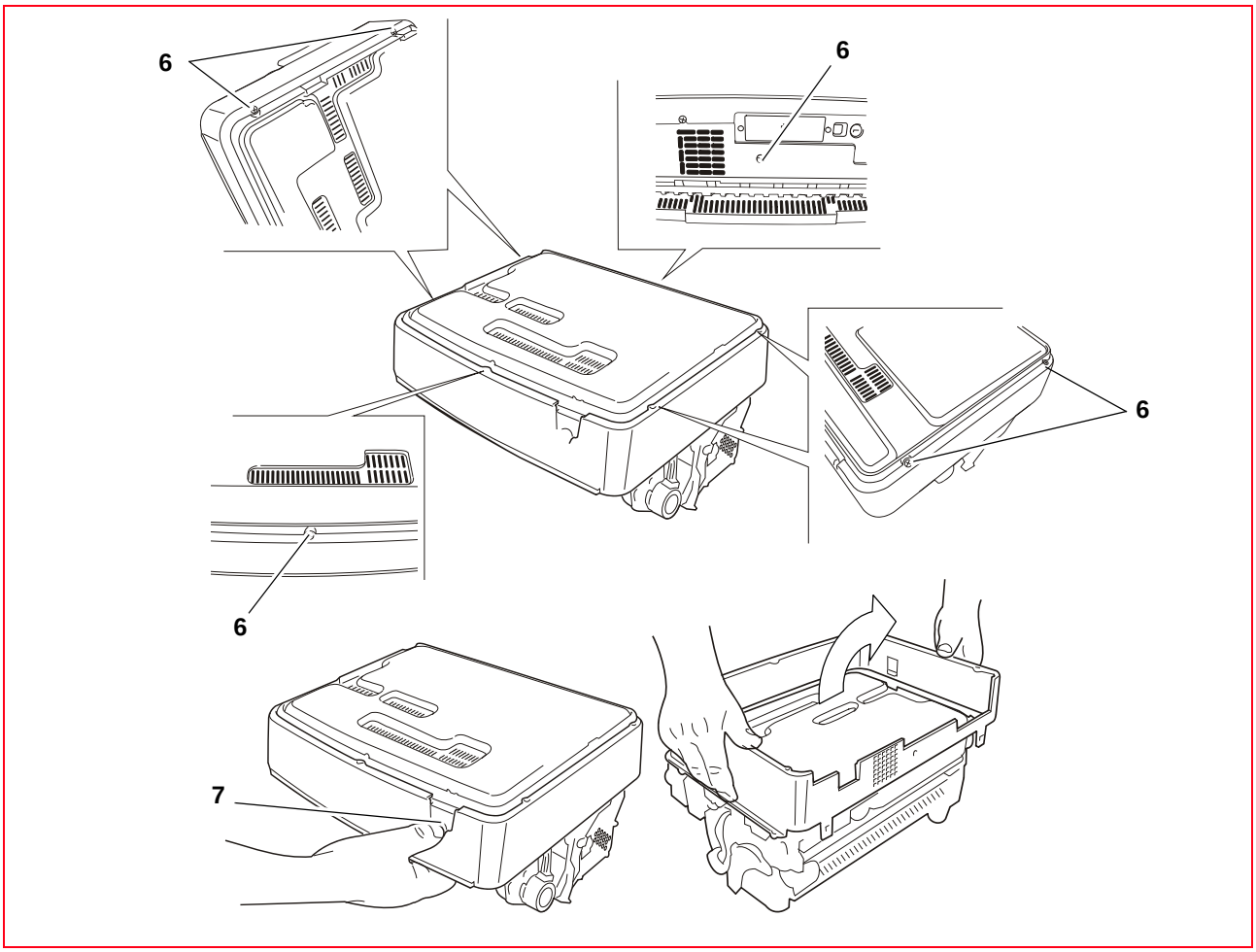


Figure 7 - 5 Removing the casing bottom

Mechanical assy disassembly/reassembly

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. On both sides, back off the lock-screws **(1)** of the tabs that fasten the front rubber pads so that these can be removed from their housing.

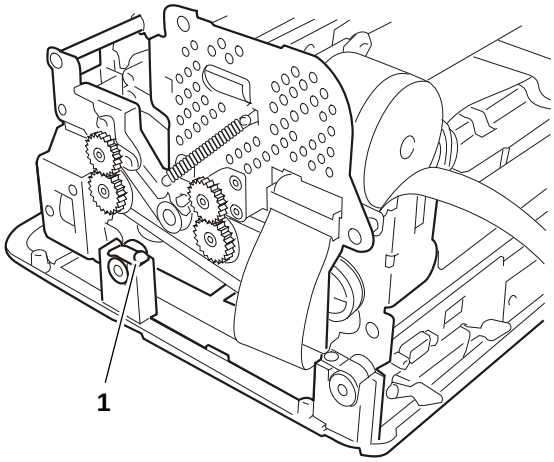
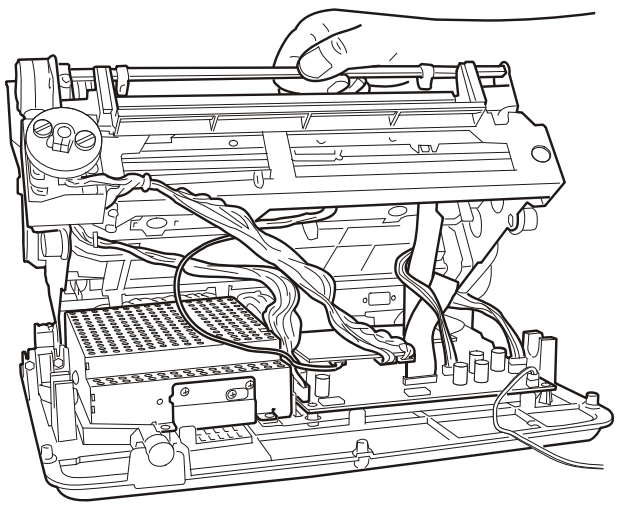
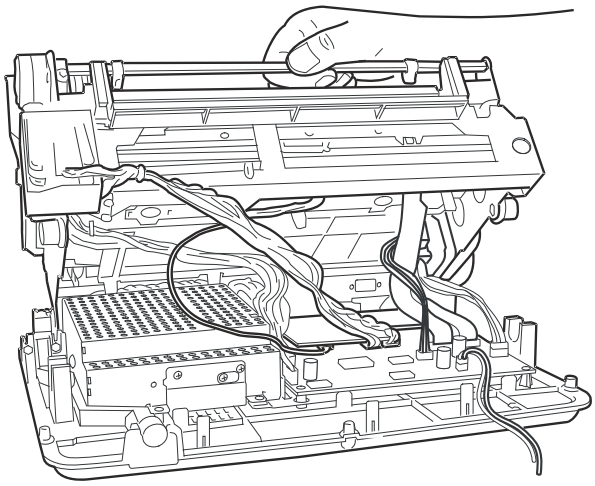


Figure 7 - 6 Disassembling the mechanical assy

3. From the front, lift the entire mechanism from the base plate and rotate it partially so as to access the connectors of the motherboard.
4. Disconnect all the connection cables of the mechanism to the motherboard, except for the motherboard - power supply unit connection cable.



Printers with serial number 8.xxx.xxx



Printers with serial number 1.xxx.xxx

Figure 7 - 7 Disconnecting the cables

5. Loosen the lock-screws **(2)** of the tabs that fasten the rear rubber pads so that these can be removed from their housing.
6. Back off the screw **(3)** that fastens the ground cables.
7. Lift the mechanical assy and separate it from the base plate.

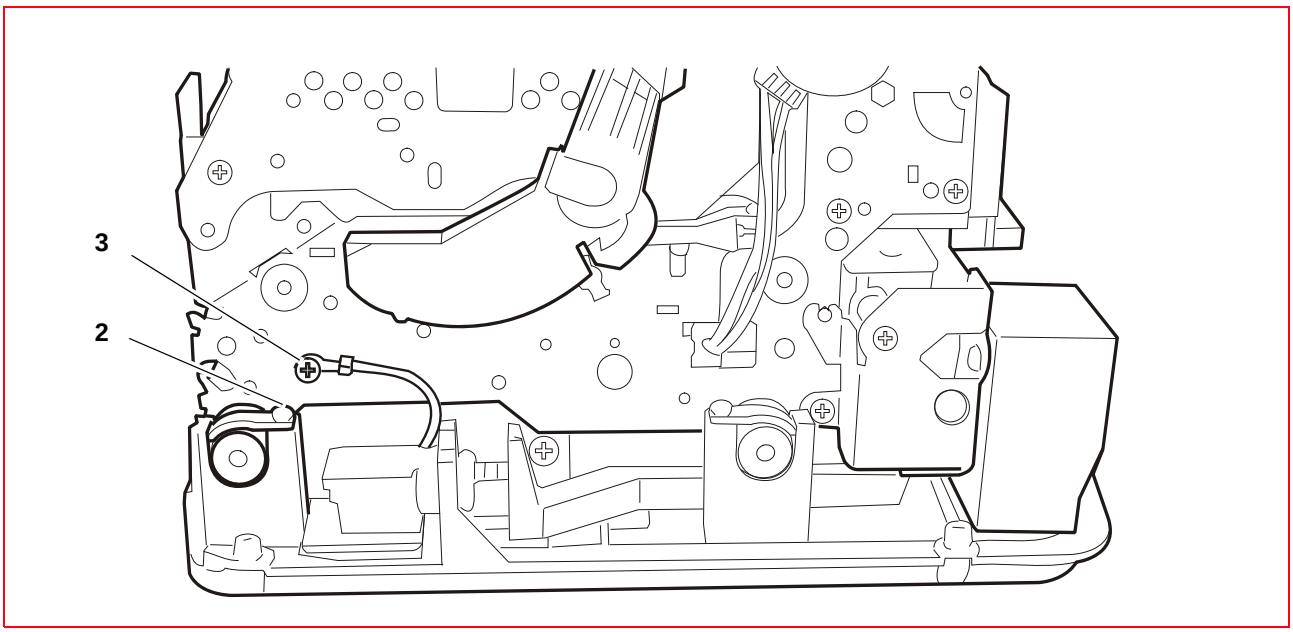


Figure 7 - 8 Removing the mechanical assembly unit

Printhead flat cable disassembly/reassembly

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. Removing the ribbon cartridge from the printer. See the section “REPLACING THE RIBBON CARTRIDGE” on page 3 - 8.
3. Free the cable clip **(1)** on the right-hand side of the structure, unclipping it from the inside (2) of the structure.
4. Remove the sound-proofing material (**3**).
5. Loosen the lock-screw **(4)** of the rear cable clip, rotate the cable clip and free the flat cable.
6. Rotate the flat cable support connected to the printhead **(5)** upwards to its stopping point.
7. Slide out the mylar **(6)** from the lower part of the flat cable support, then free the flat cable from the clips of the support.

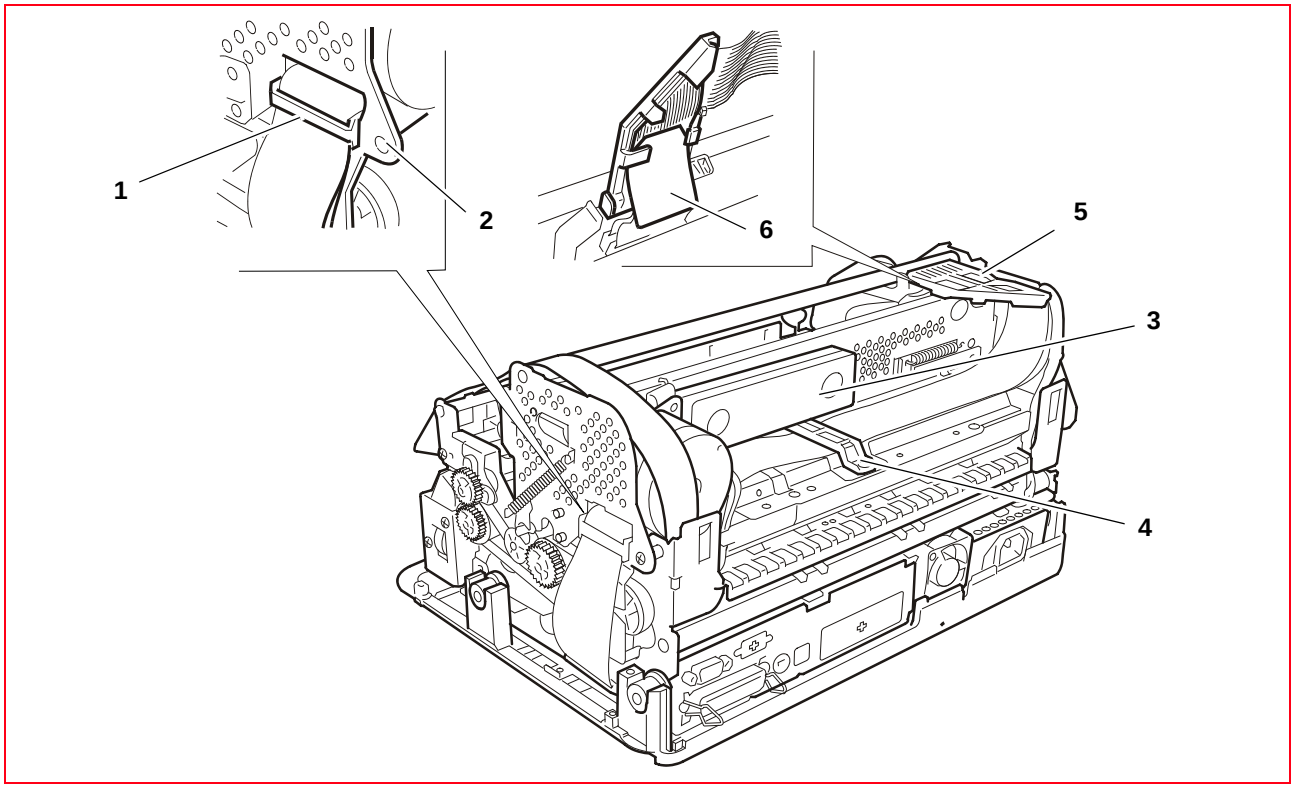


Figure 7 - 9 Removing the cable retainers

8. Remove the printhead, unscrewing the two screws **(1)**.

9. Slide out the two flat cables from the respective connectors **(2)** on the printhead.

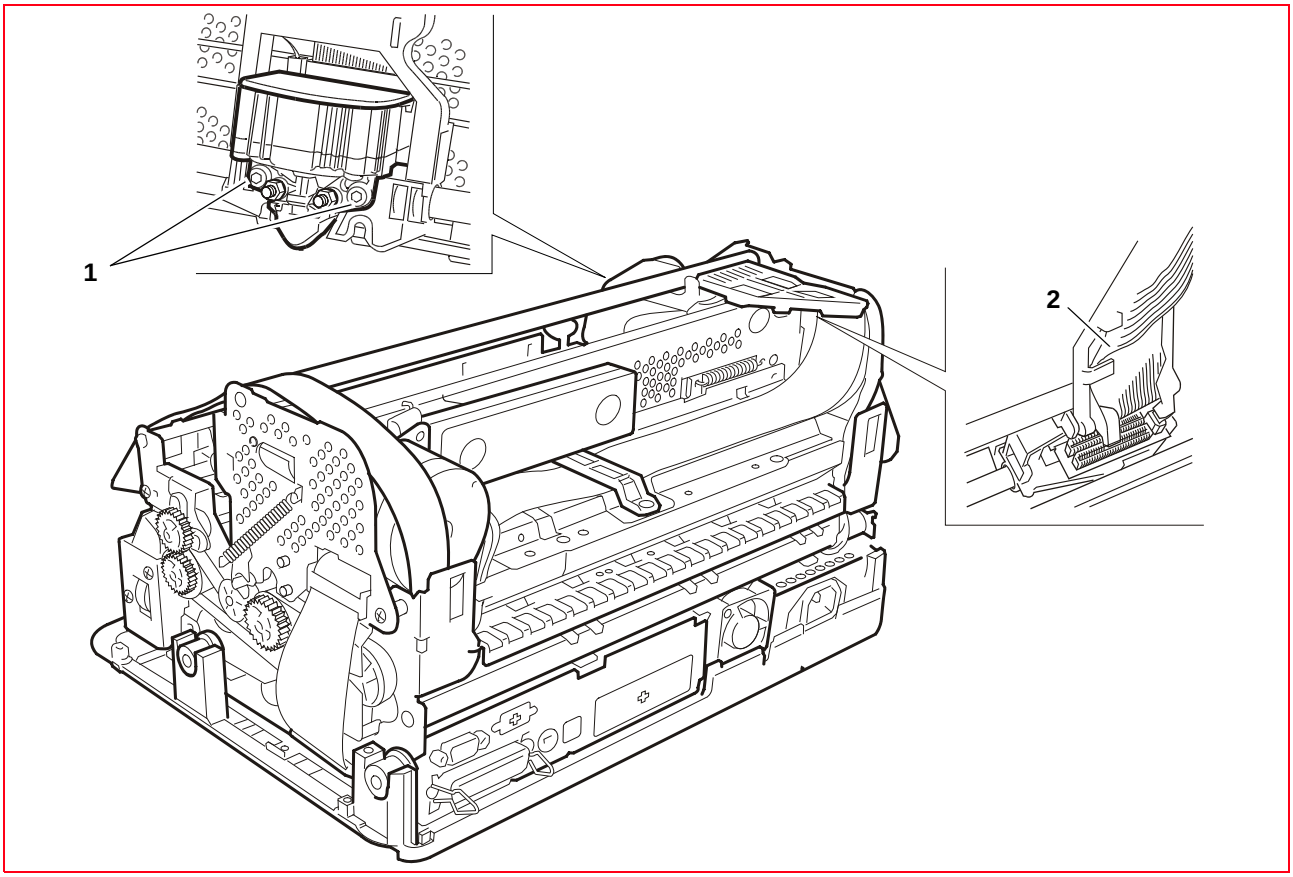
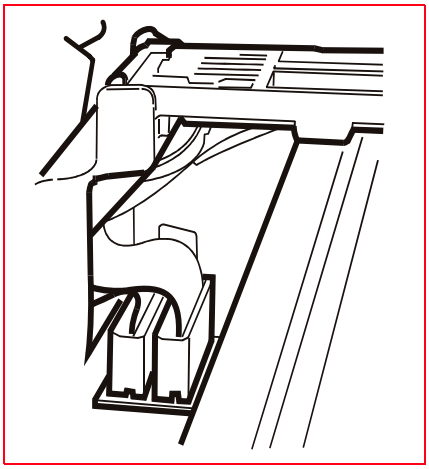


Figure 7 - 10 Removing the flat cable of the printhead

WARNING: when reassembling the flat cable on the printhead, check that the path indicated in the figure has been restored and that it does not interfere with the ribbon rewind gears which could cause irreparable damage to this during machine operation.



Printhead disassembly/reassembly

1. Open the top cover and lift the upper mechanical assy.
2. Removing the ribbon cartridge from the printer. See the section “REPLACING THE RIBBON CARTRIDGE” on page 3 - 8.
3. Back off the two lock-screws **(1)** of the printhead.
4. Partially slide out the printhead from the carriage and disconnect the two flat cables **(2)** from the connectors on the printhead.

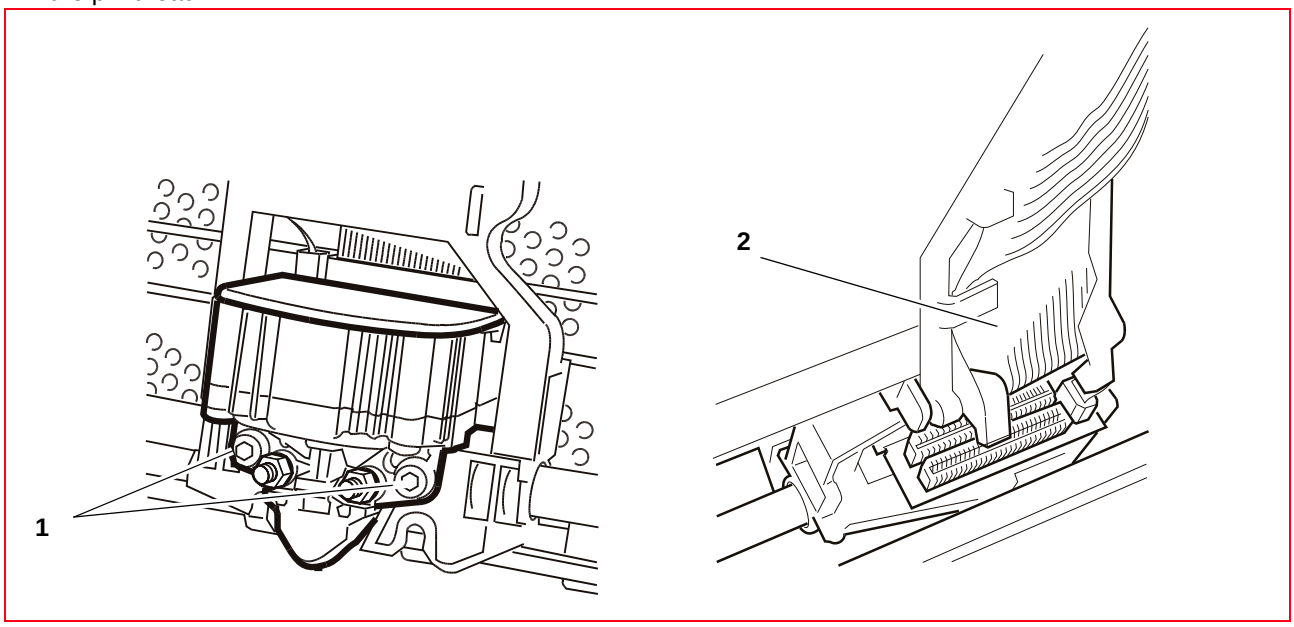


Figure 7 - 11 Removing the printhead of the carriage

To disassemble the components of the printhead:

1. Unscrew the two front screws **(2)** and unmount the probe roller
2. Unscrew the two side screws **(3)** and unmount the ribbon protection flap.
3. Unscrew the rear screw **(4)**, disconnect the connector **(5)** and remove the paper photosensor.

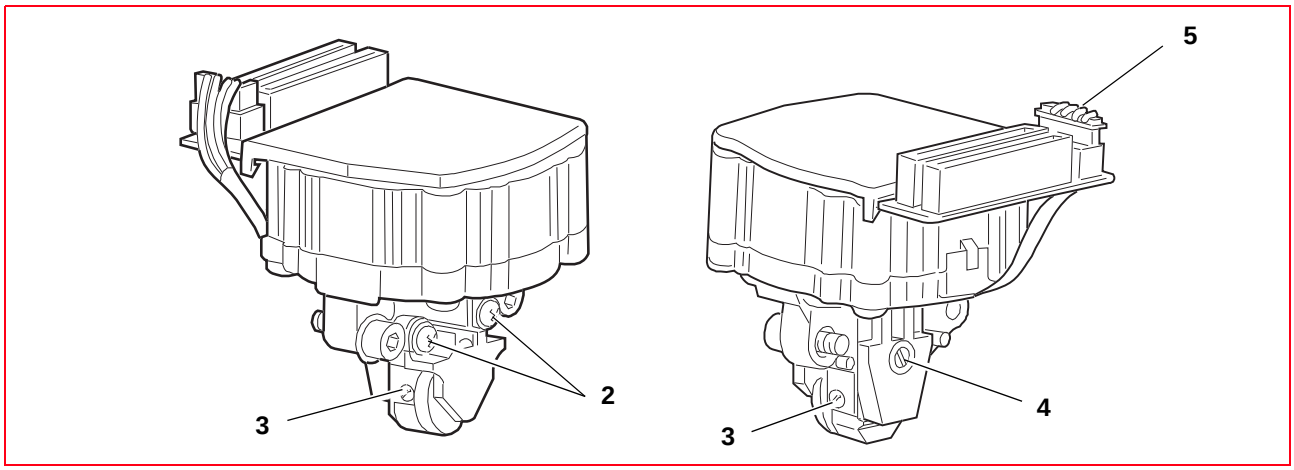


Figure 7 - 12 Disassembling the printhead

NOTE: to insert the flat cables into the printhead connectors, free them from the cable guiding block, then block them again after insertion. During the phase for reassembling the components of the printhead carry out the adjustments: “Adjusting Paper Photosensor” on page 6 - 8 , “Adjusting the print bar (where torsion bar present)” on page 6 - 4 and “Adjusting the print bar (where torsion bar absent)” on page 6 - 5.

Upper mechanical assy disassembly/reassembly

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. From the front, lift the entire mechanical assy from the base plate and rotate it partially so as to access the connectors of the motherboard.
   See the section “Mechanical assy disassembly/reassembly” on page 7 - 6.
3. Disconnect the connection cables of the printhead, of the carriage reset photosensor and of the upper scanner CIS (if present) from the motherboard. Free the cable of the carriage reset photosensor from the plastic clips.
4. Disconnect the connector **(1)** from the carriage transport motor.
5. Lift the upper mechanical assy using the specific levers. See the section “Lever for lifting the upper part of the mechanism” on page 3 - 4.
6. Back off the two rear side hinge pins **(2)** to disconnect the upper mechanical assy.

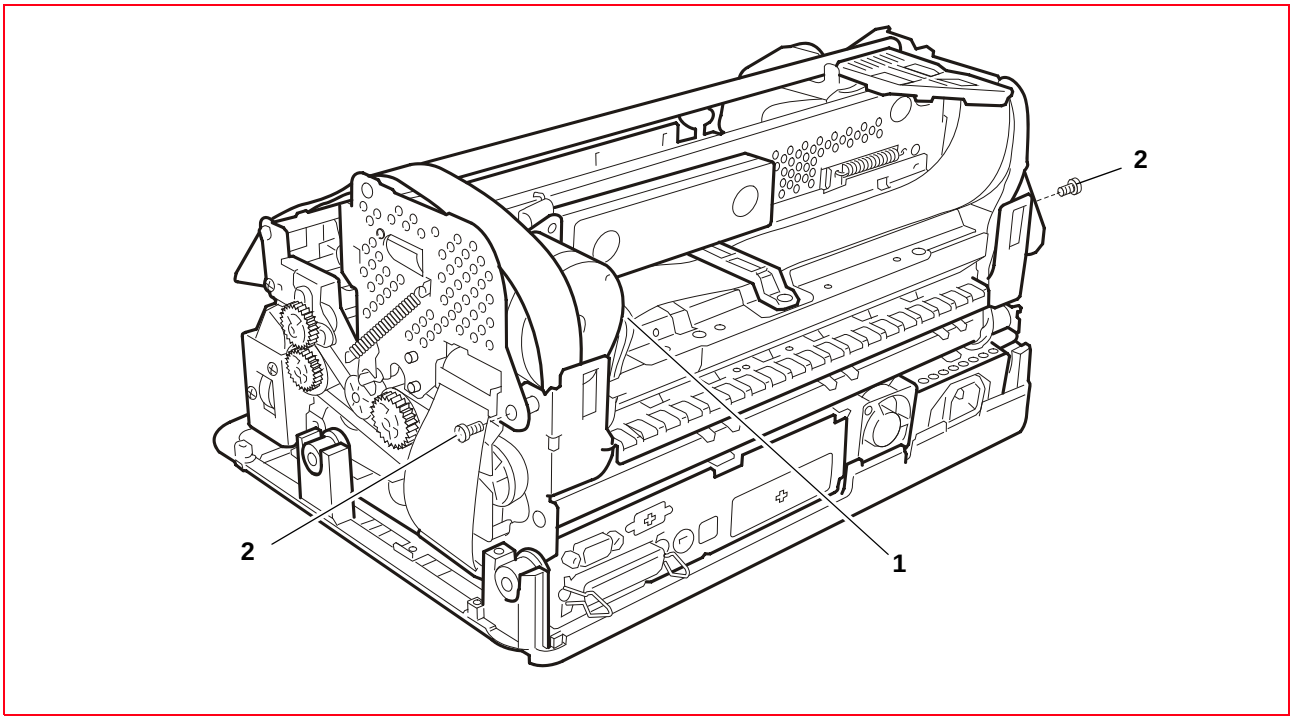


Figure 7 - 13 Disassembling the upper mechanical assy

NOTE: during reassembly, make sure that the cables are passed through the related compartments and check adjustment of the roller gear.
See the section “Adjusting the roller gears” on page 6 - 9.

Paper feed motor disassembly/reassembly

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. Remove the mechanical assy as explained above. See the section “Mechanical assy disassembly/reassembly” on page 7 - 6.
3. Loosen the two lock nuts **(1)** of the motor and remove the document drive belt **(2)** from the pulleys.
4. Loosen the nuts **(1)** and extract the motor.

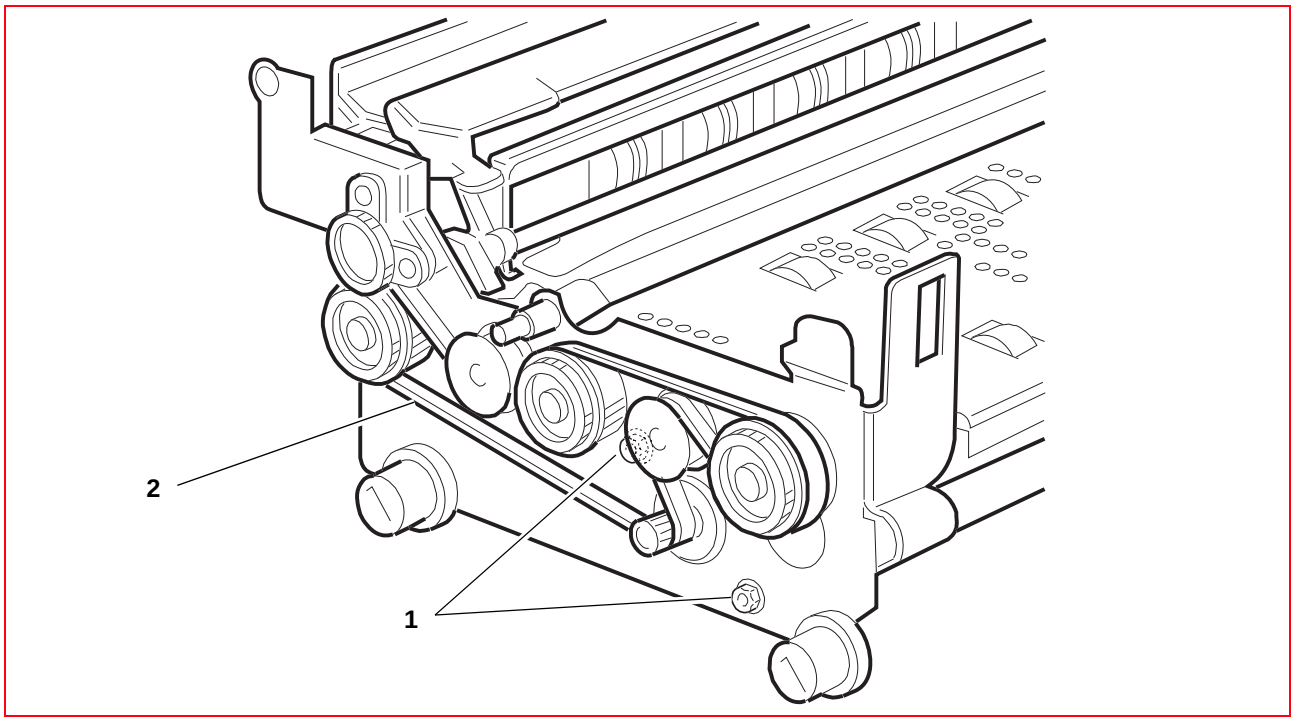


Figure 7 - 14 Disassembling the paper feed motor

NOTE: during reassembly, adjust the document drive belt. See the section “Adjusting the document drive belt” on page 6 - 3.

Printhead drive motor disassembly/reassembly

1. Remove the upper mechanical assy as explained above. See the section “Printhead disassembly/reassembly” on page 7 - 10.
2. Loosen the lock-screw **(1)** of the idler pulley support slide and release the carriage movement belt from the motor pinion.
3. Unhook the flat cable of the printhead loosening the screw **(2)**.
4. Back off the three special lock-screws **(3)** and extract the printhead movement motor from its housing, taking care not to damage the ribbon feed gears.

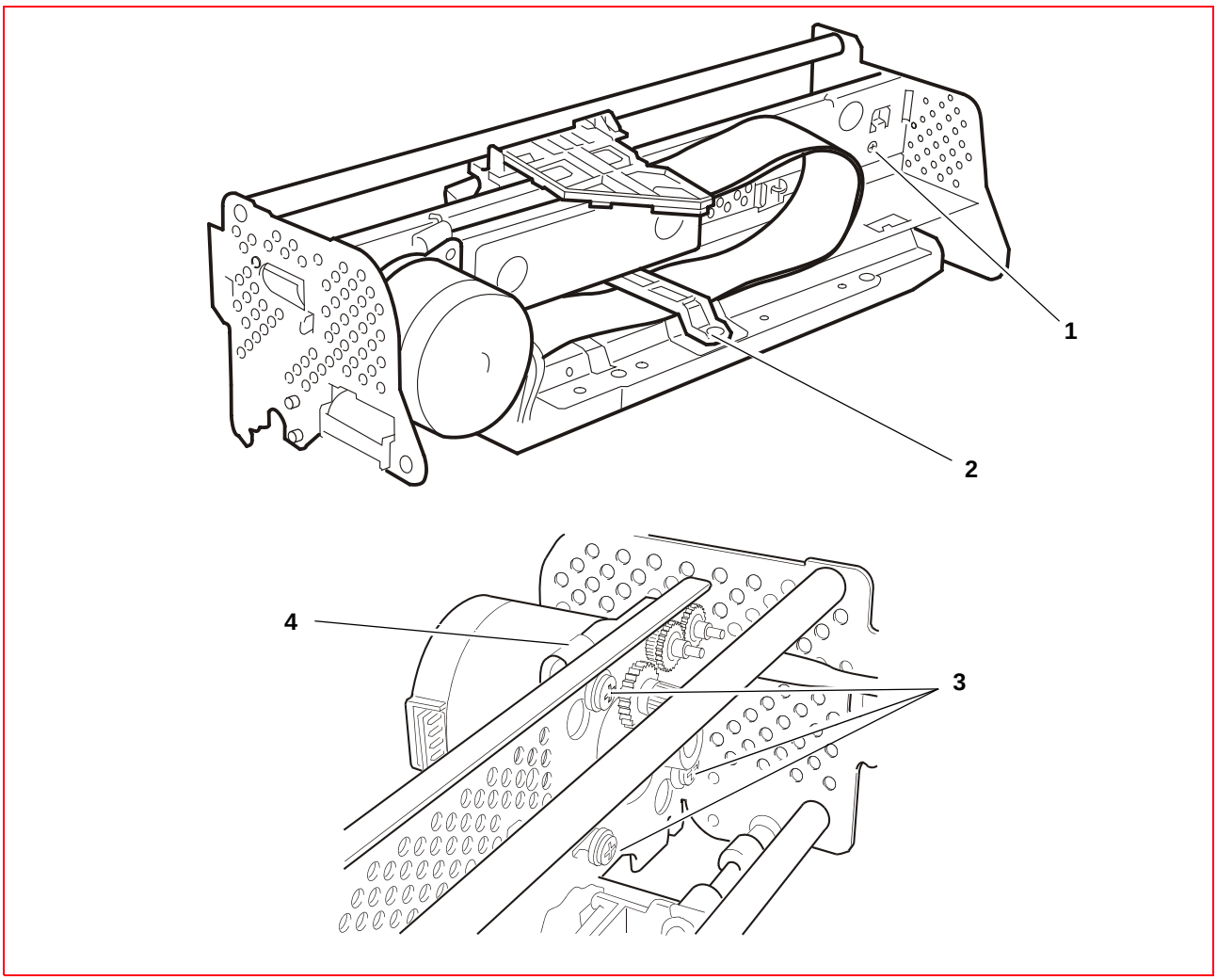


Figure 7 - 15 Removing the motor for printhead movement

NOTE: during reassembly, correctly reposition the ground clip (4) and adjust the carriage drive belt. See the section “Replacement and adjustment of belt for carriage movement” on page 6 - 15.

Services motor disassembly/reassembly

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. From the front, lift the entire mechanical assy from the base plate and rotate it partially so as to access the connectors of the motherboard.
   See the section “Mechanical assy disassembly/reassembly” on page 7 - 6.
3. Disconnect the cable that connects the services motor **J26** to the motherboard.
4. Back off the two screws **(1)** that fasten of the motor to the left-hand side structure and remove it from the machine.

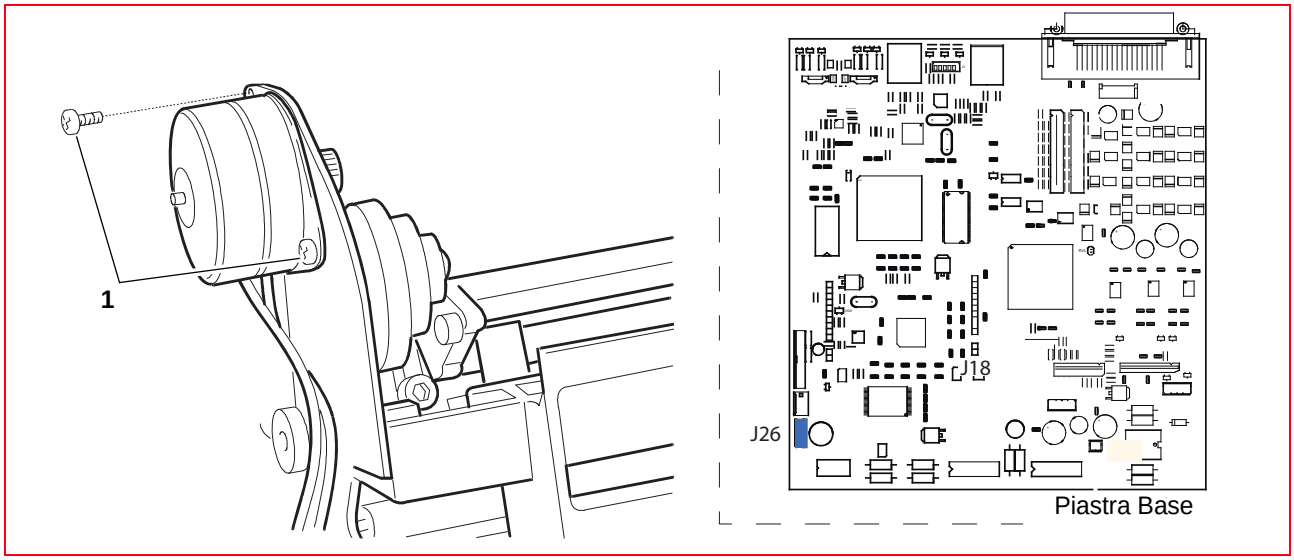


Figure 7 - 16 Disassembling the services motor

Feeder photosensors disassembly/reassembly

1. Remove the mechanical assy. See the section “Mechanical assy disassembly/reassembly” on page 7 - 6.
2. Remove the upper mechanical assy. See the section “Printhead disassembly/reassembly” on page 7 - 10.
3. Remove the roller guard, removing the related M3 lock-screws (**1**).

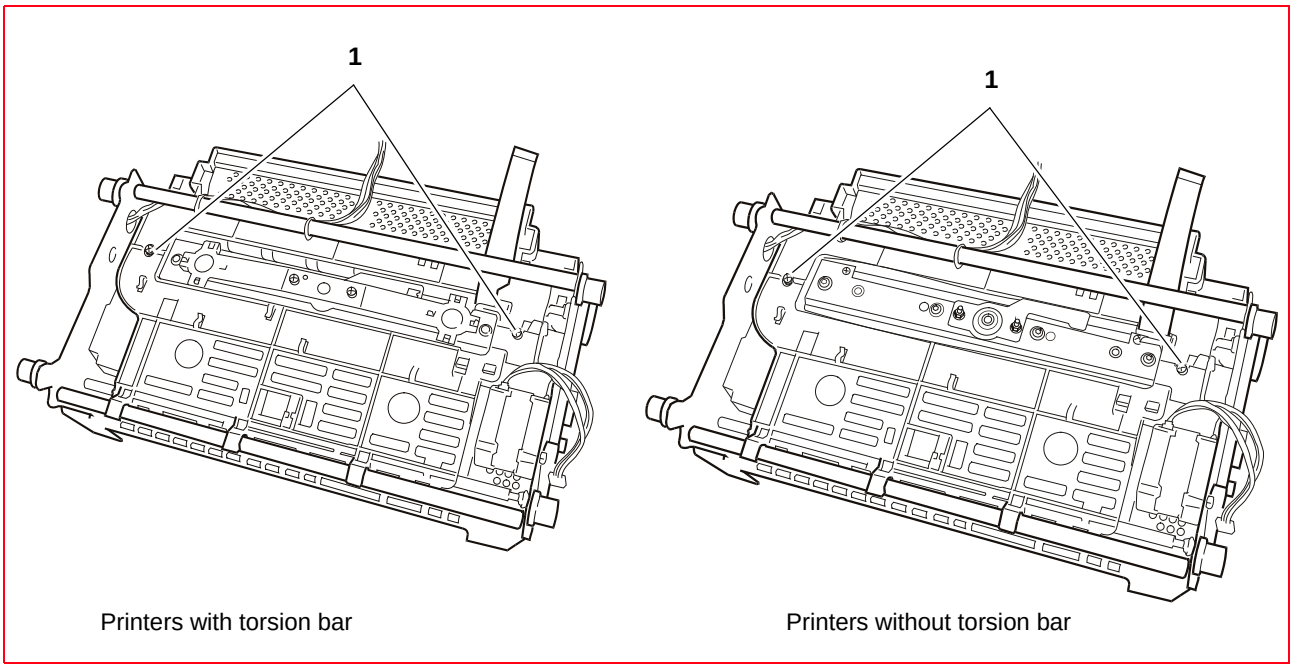


Figure 7 - 17 Disassembling the roller cover

4. Release the two springs **(2)** and slide out the document stop combs from their guides, after straightening the two tabs that prevent sliding out of the paper **(3)**.

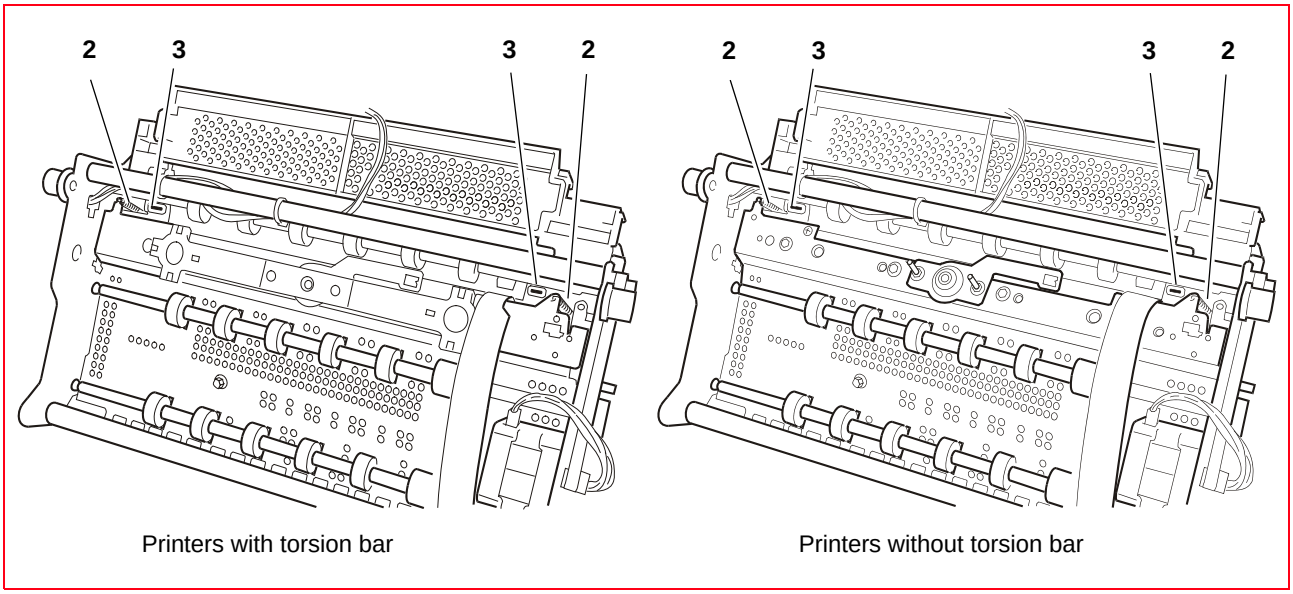


Figure 7 - 18 Removing the document stop comb

5. Release the bush **(4)** of the shaft and remove the bracket **(5)** of the alignment pressure rollers, then remove the entire assy **(6)**.

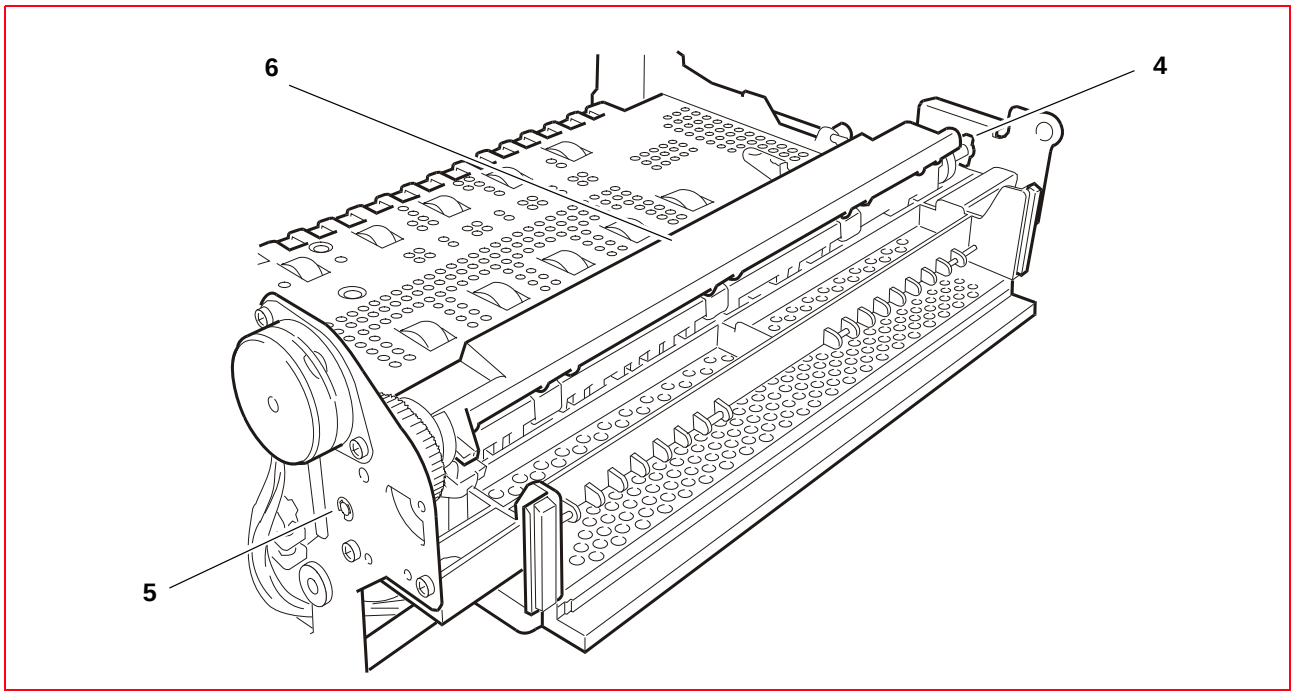


Figure 7 - 19 Removing the roller pressure unit

6 Back off the six lock-screws **(7)** of the conveyor **(8)**.

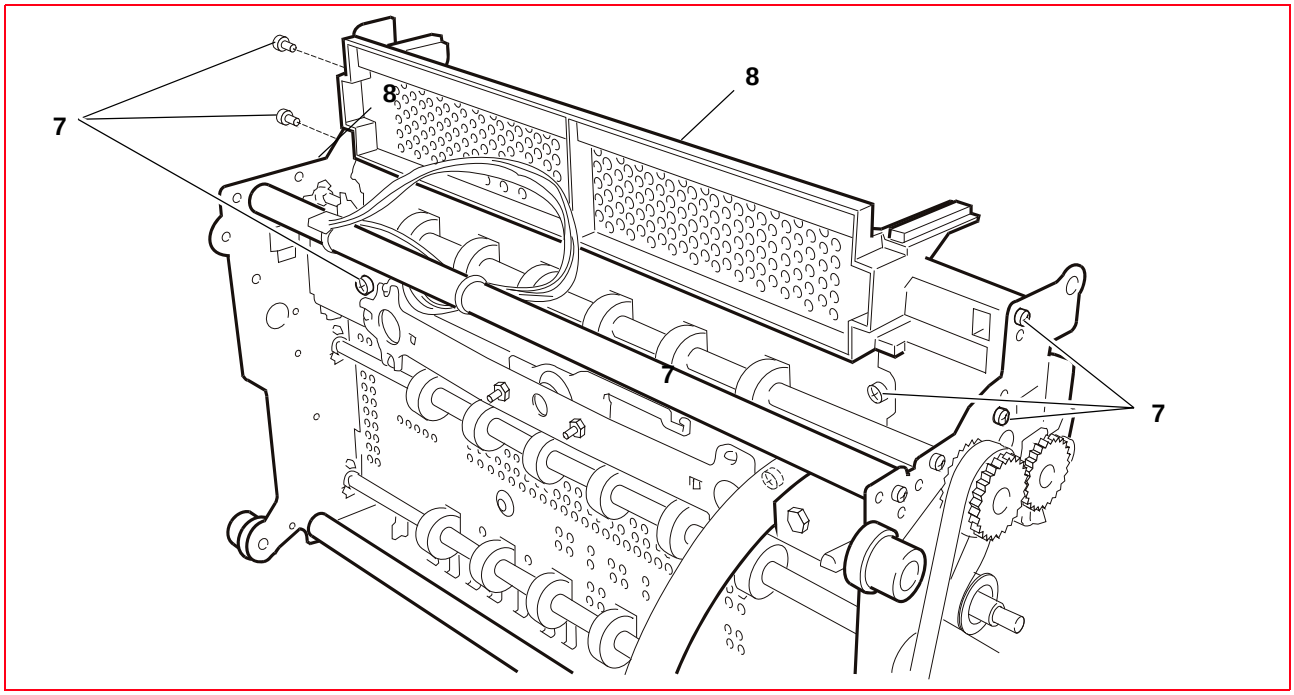


Figure 7 - 20 Feeder unit screws

7. Back off the two lock-screws **(9)** of the photosensor support **(10)** and remove it.

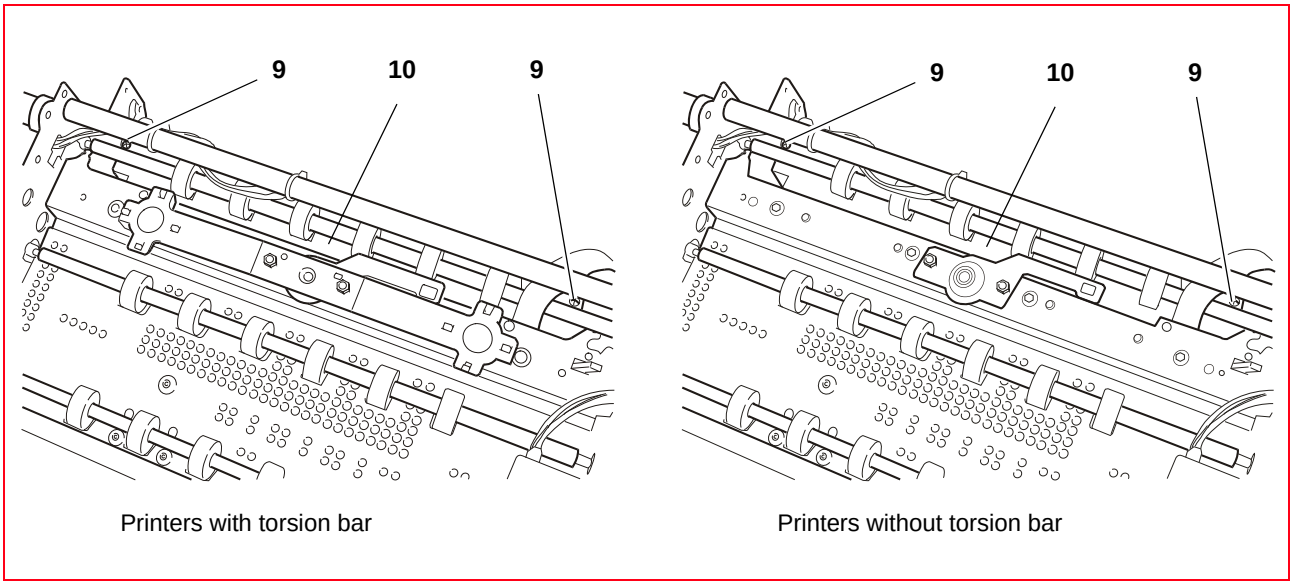


Figure 7 - 21 Removing the photosensor support

NOTE: during reassembly, do not fix the photosensor support until the feeder unit is fixed, as the feeder unit has two reference pins for the photosensor support. During the reassembly phase, you must adjust the front pressure rollers.
See the section “Adjusting the front pressure rollers” on page 6 - 10.
At the end of these operations, carry out calibration of the photosensors. See the section “CALIBRATING THE PHOTOSENSORS” on page 4 - 18.

Disassembling/reassembling the print bar (printers with torsion bar)

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. From the front, lift the entire mechanical assy from the base plate and rotate it partially so as to access the connectors of the motherboard. See the section “Lever for lifting the upper part of the mechanism” on page 3 - 4.
3. Disconnect all the cables except for those of the printhead.
4. Back off the two lock-nuts **(1)** of the platen and slide it out from above.

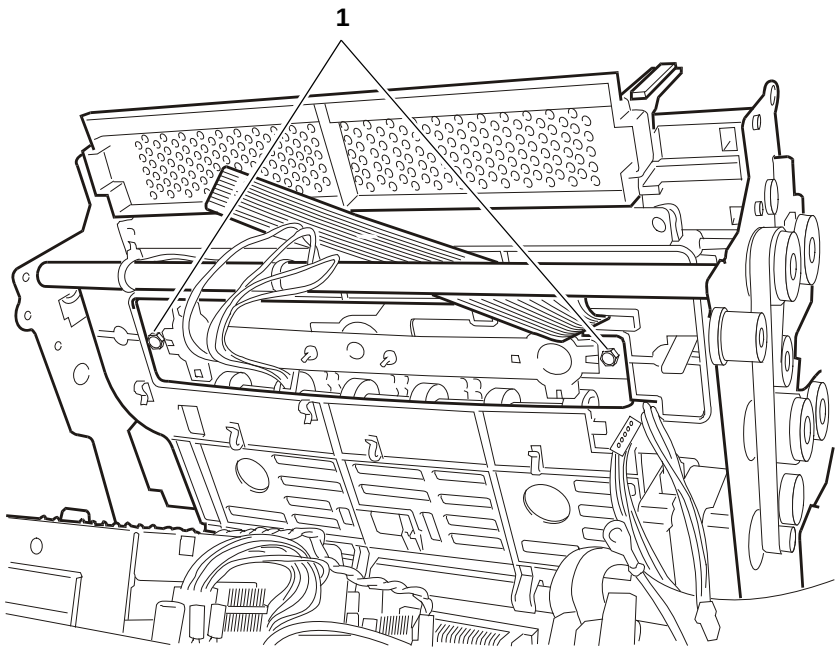


Figure 7 - 22 Disassembling the print bar

NOTE: after the reassembly phase, carry out adjustment of the print bar.
See the section “Adjusting the print bar (where torsion bar present)” on page 6 - 4.

Disassembling/reassembling the print bar (printers without torsion bar)

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. From the front, lift the entire mechanical assy from the base plate and rotate it partially so as to access the connectors of the motherboard. See the section “Lever for lifting the upper part of the mechanism” on page 3 - 4.
3. Disconnect all the cables except for those of the printhead.
4. Back off the four lock-nuts **(1)** of the platen and slide it out from above.

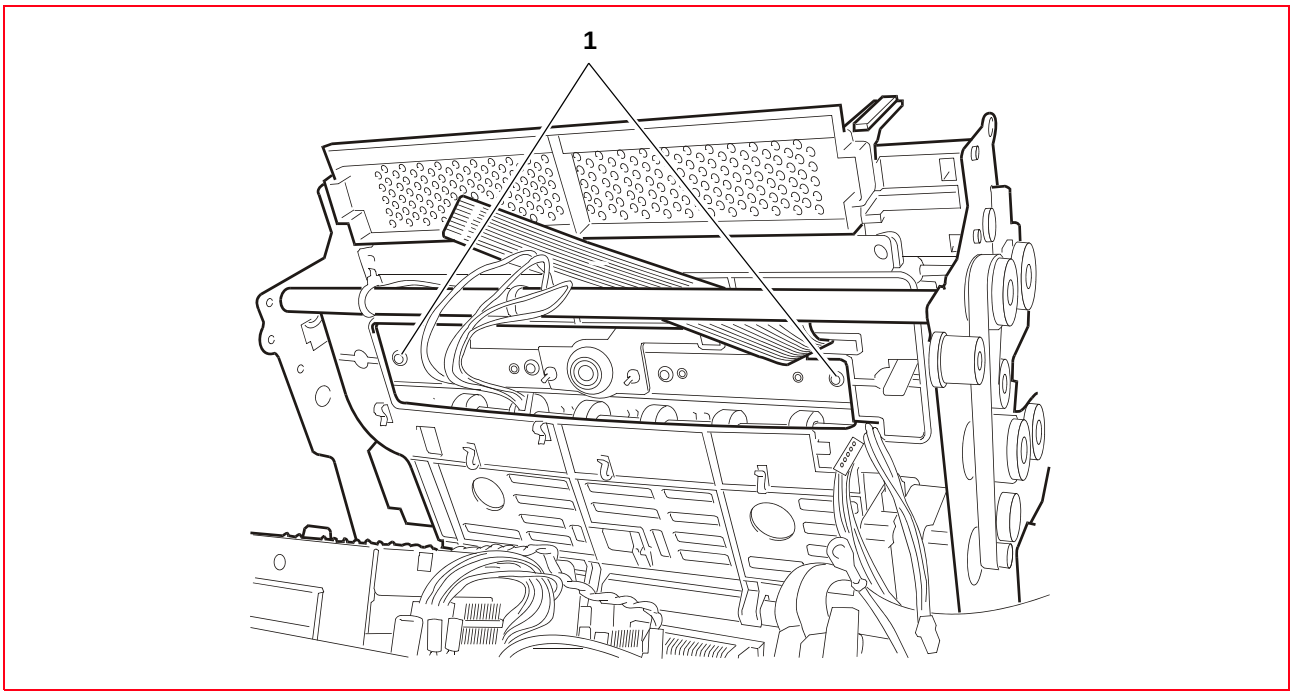


Figure 7 - 23 Disassembling the print bar

NOTE: after the reassembly phase, carry out adjustment of the print bar.
See the section “Adjusting the print bar (where torsion bar absent)” on page 6 - 5.

Disassembling/reassembling pressure roller unit

1. Raise the upper cover.
2. Raise the print unit. See the section “Lever for lifting the upper part of the mechanism” on page 3 - 4.
3. Unscrew the four screws (**1**).
4. Remove the pressure roller unit **(2)**, extracting it downwards and being careful not to lose the component **(3)**.

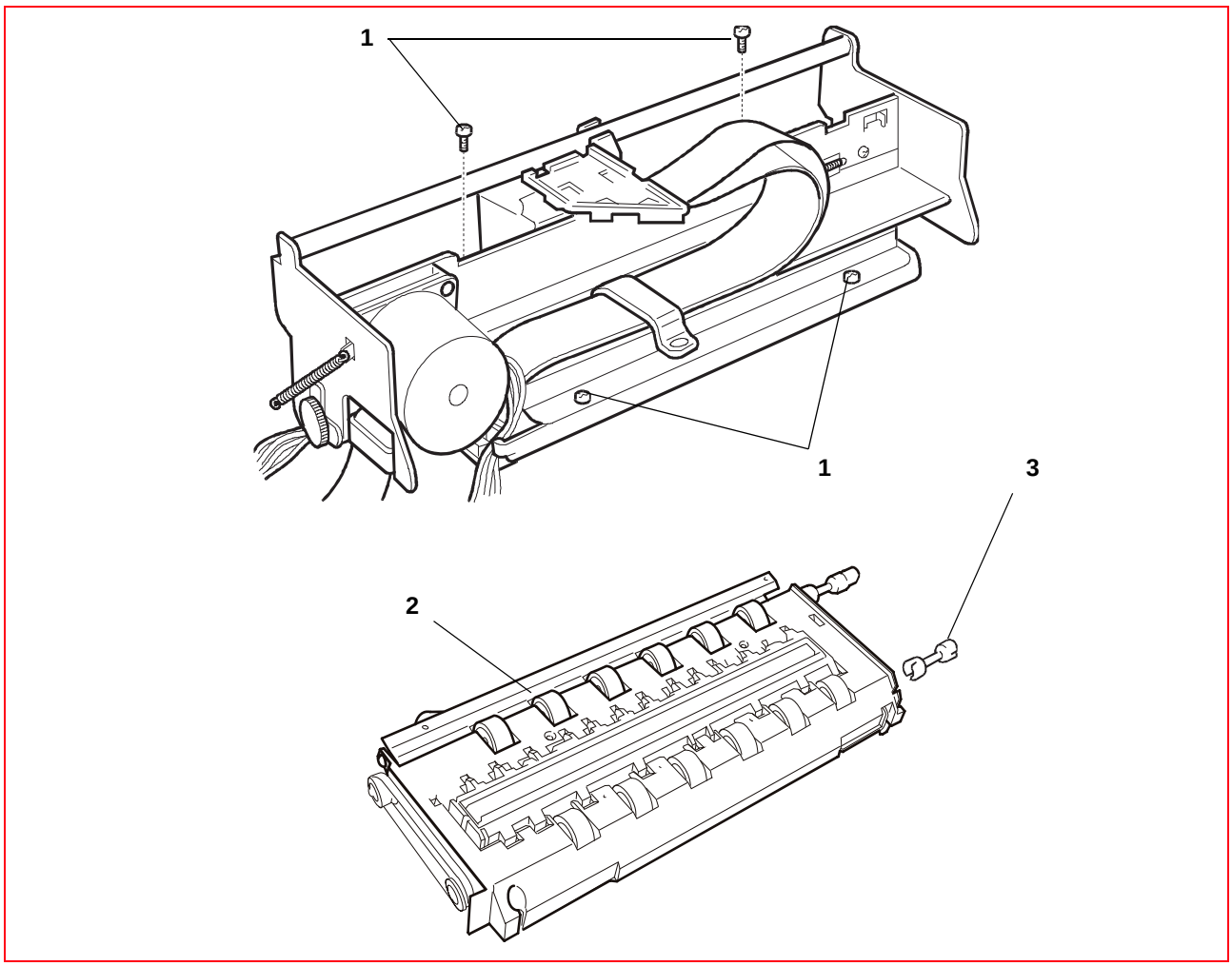


Figure 7 - 24 Disassembling the pressure roller unit

Disassembling/reassembling the motherboard (printers with scanner)

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. Remove the upper mechanical assy. See the section “Mechanical assy disassembly/reassembly” on page 7 - 6.
3. Disconnect the power cord **(J16)** that connects the motherboard to the mains unit.

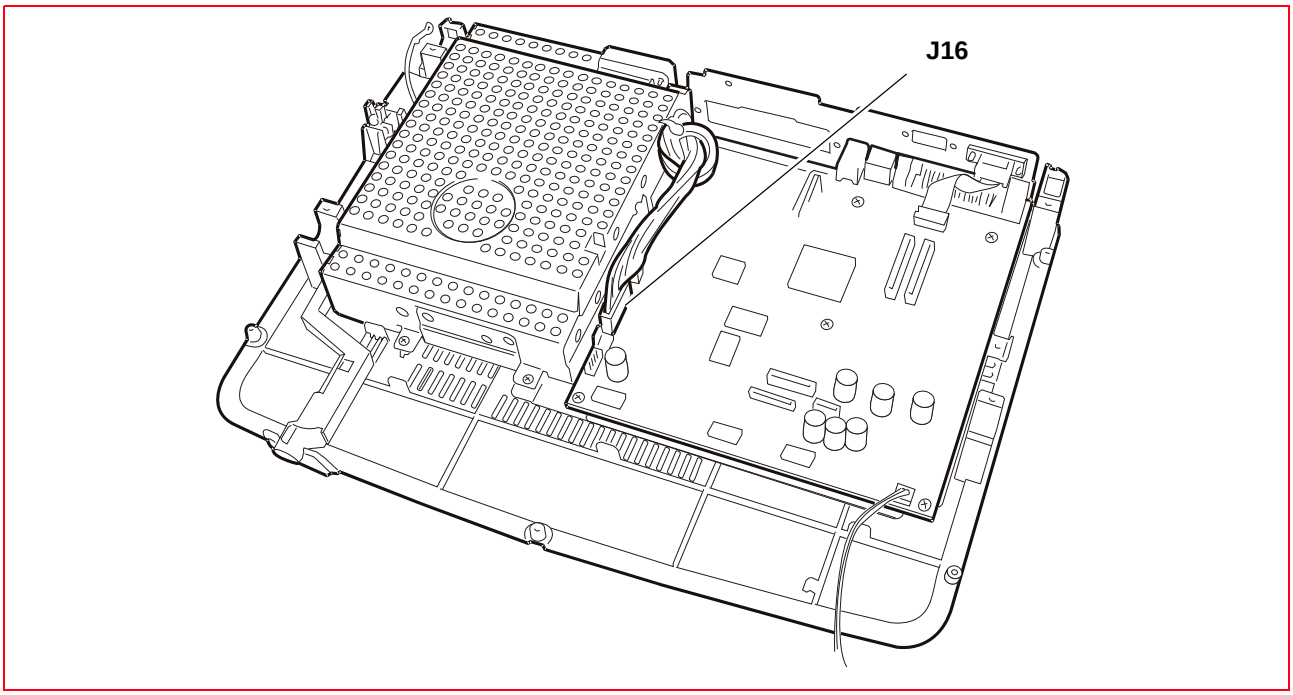


Figure 7 - 25 Power connector

4. Remove the magnetic options option (**1**).

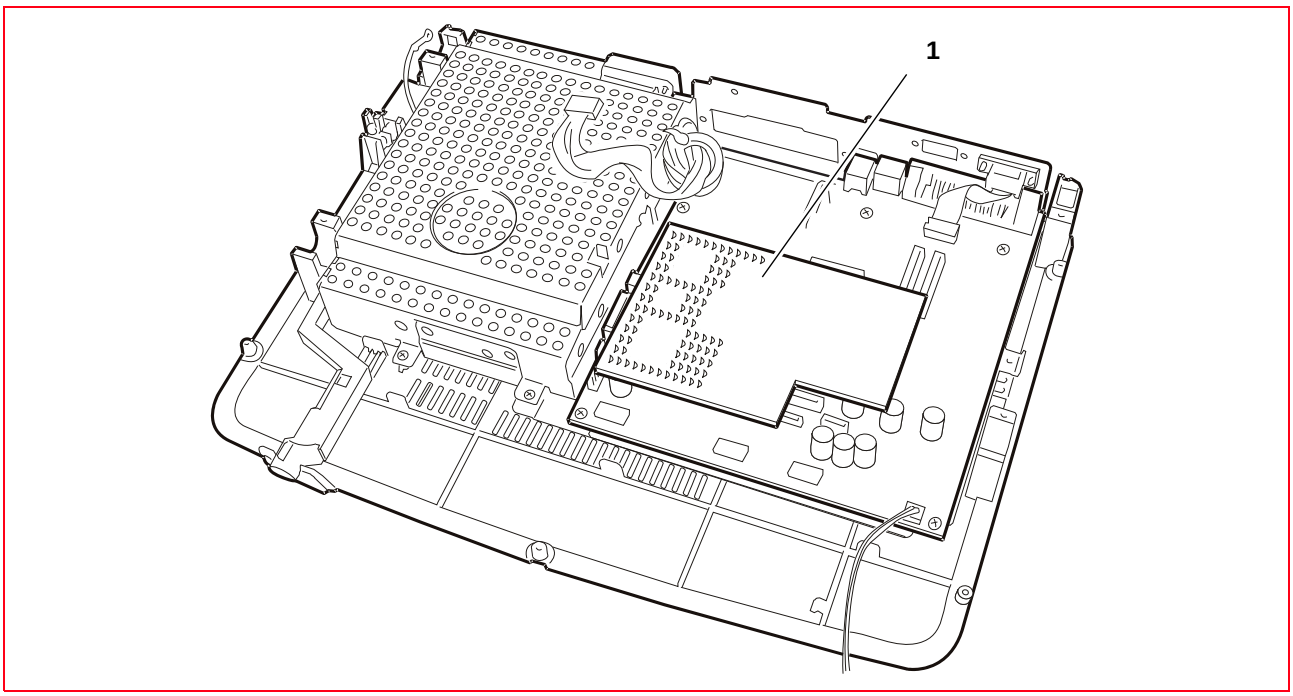


Figure 7 - 26 Removing the magnetic options board

5. Back off the six lock-screws **(1)** of the motherboard.

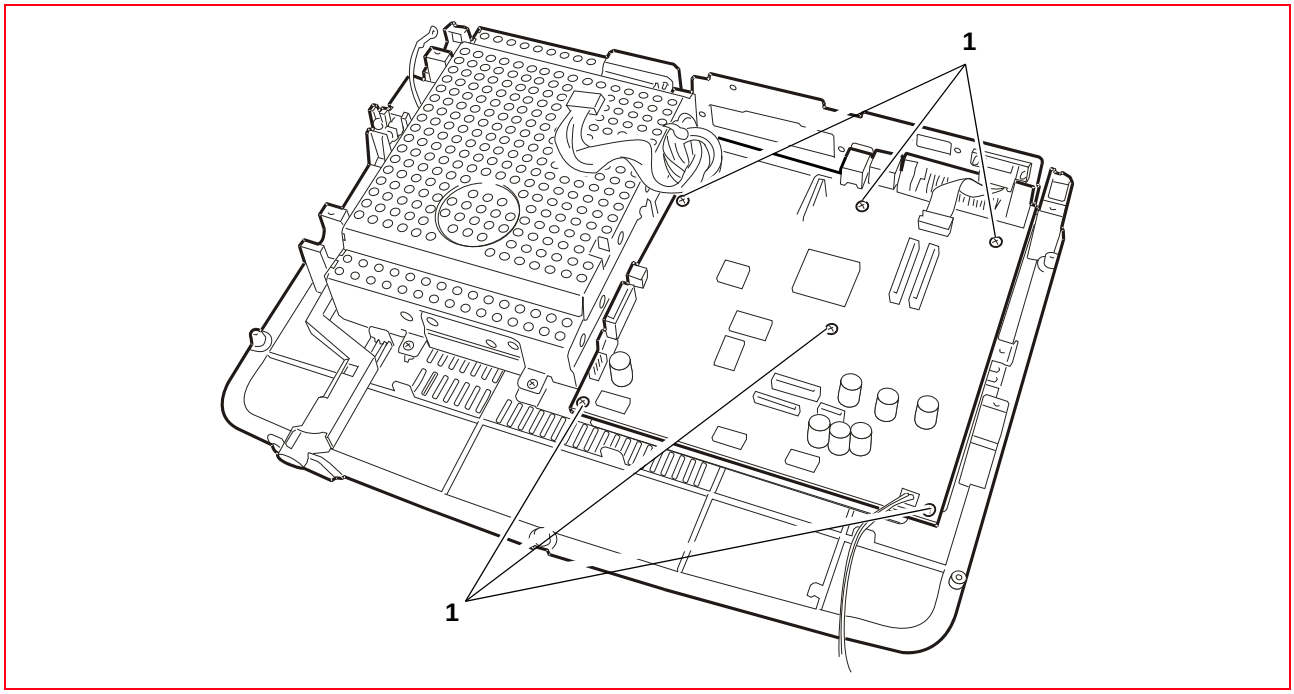


Figure 7 - 27 Fastening screws of motherboard

6. Back off the two fasteners **(2)** of the standard serial interface connector and back off the two screws **(3)** of the Centronics interface connector and extract the motherboard from the base plate of the printer.

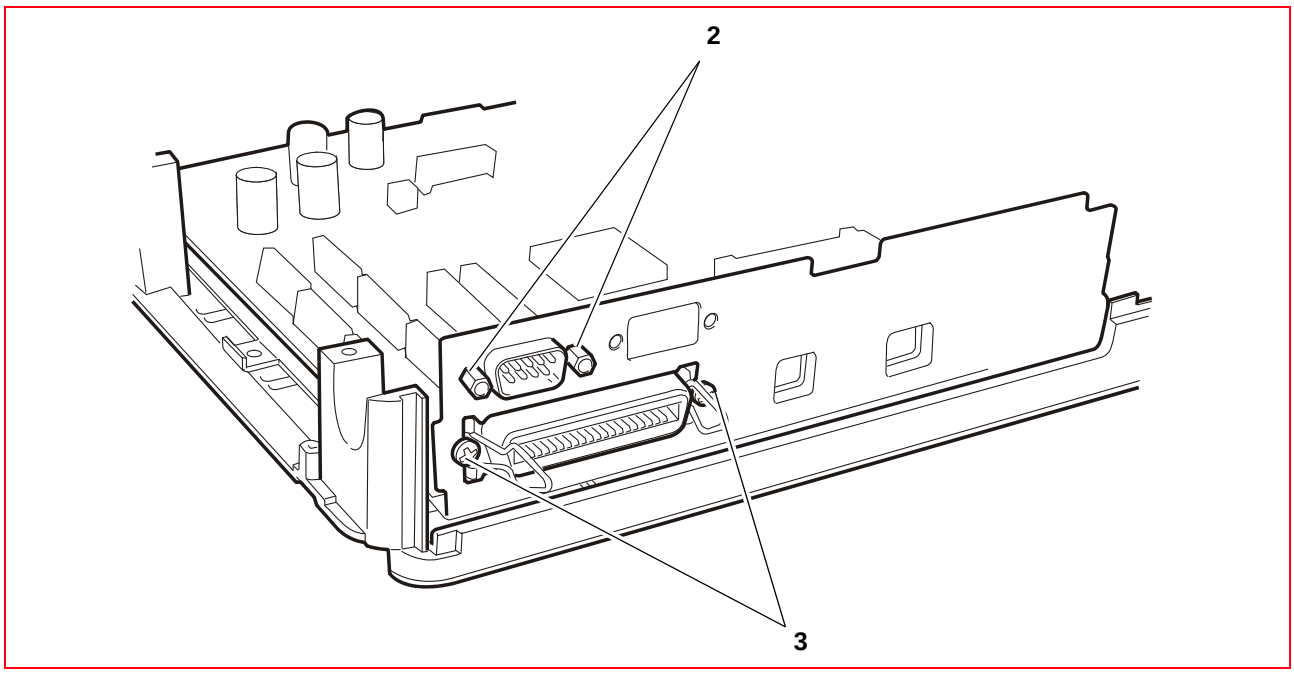


Figure 7 - 28 Interface connector columns and screws

NOTE: when replacing the board, update the firmware with the latest release, configure the parameters (see the section “CONFIGURING THE OPERATION PARAMETERS” on page 4 - 1) and calibrate the photosensors (see the section “CALIBRATING THE PHOTOSENSORS” on page 4 - 18).

Disassembling/reassembling the motherboard (printers with serial number 8.xxx.xxx and 1.xxx.xxx)

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. Remove the mechanical assy. See the section “Mechanical assy disassembly/reassembly” on page 7 - 6.
3. Disconnect the power cable (**J16** - printers with serial number 8.xxx.xxx) or (**J15** - printers with serial number 1.xxx.xxx).

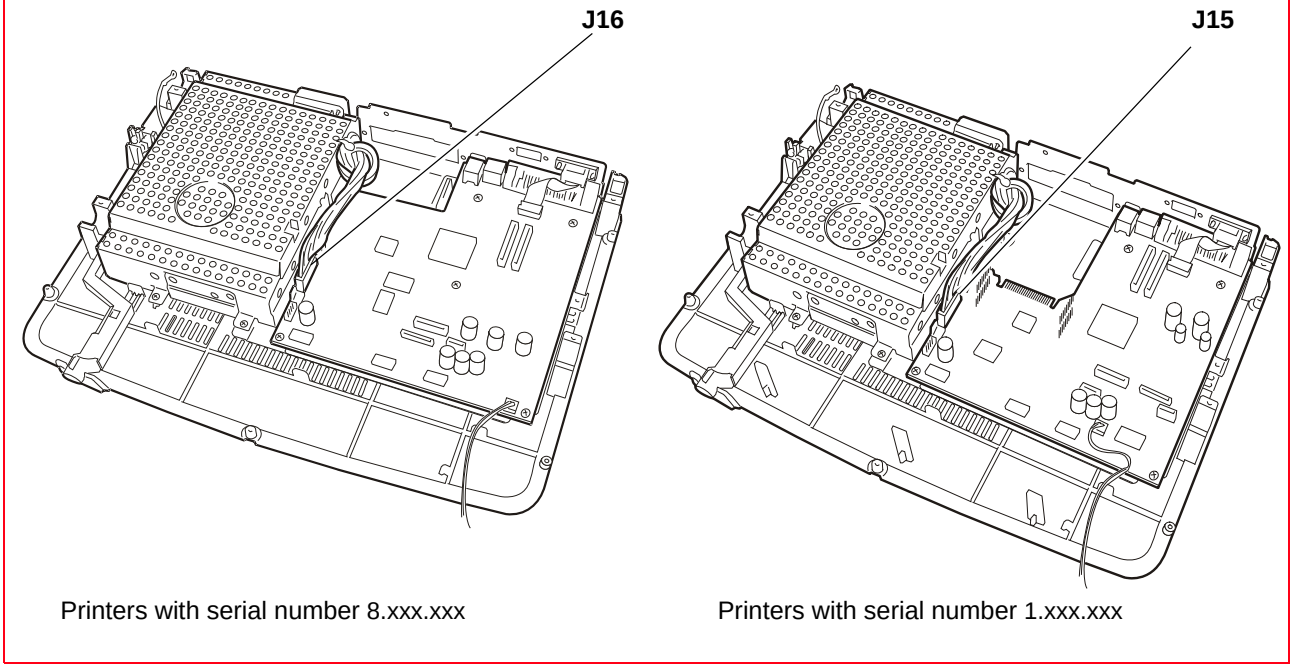


Figure 7 - 29 Power connector

4. Remove magnetic options option (**1**).

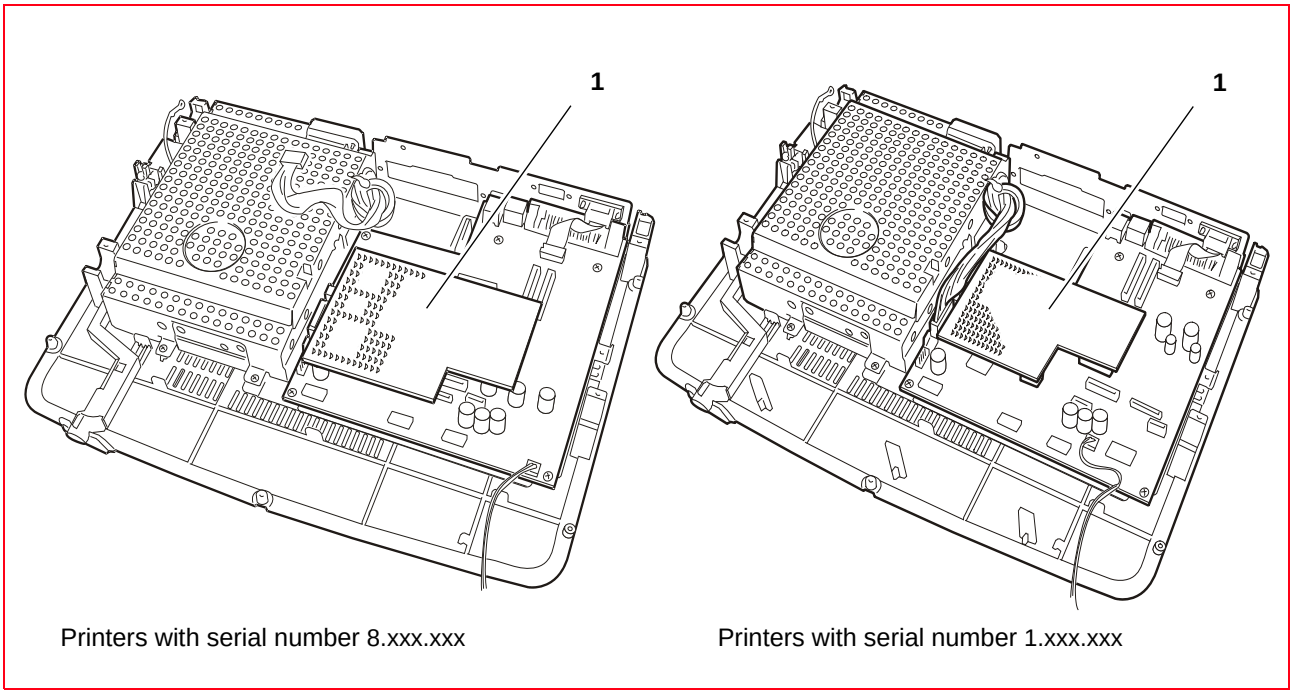


Figure 7 - 30 Removing the magnetic options board

5. Back off the lock-screws **(1)** of the motherboard.

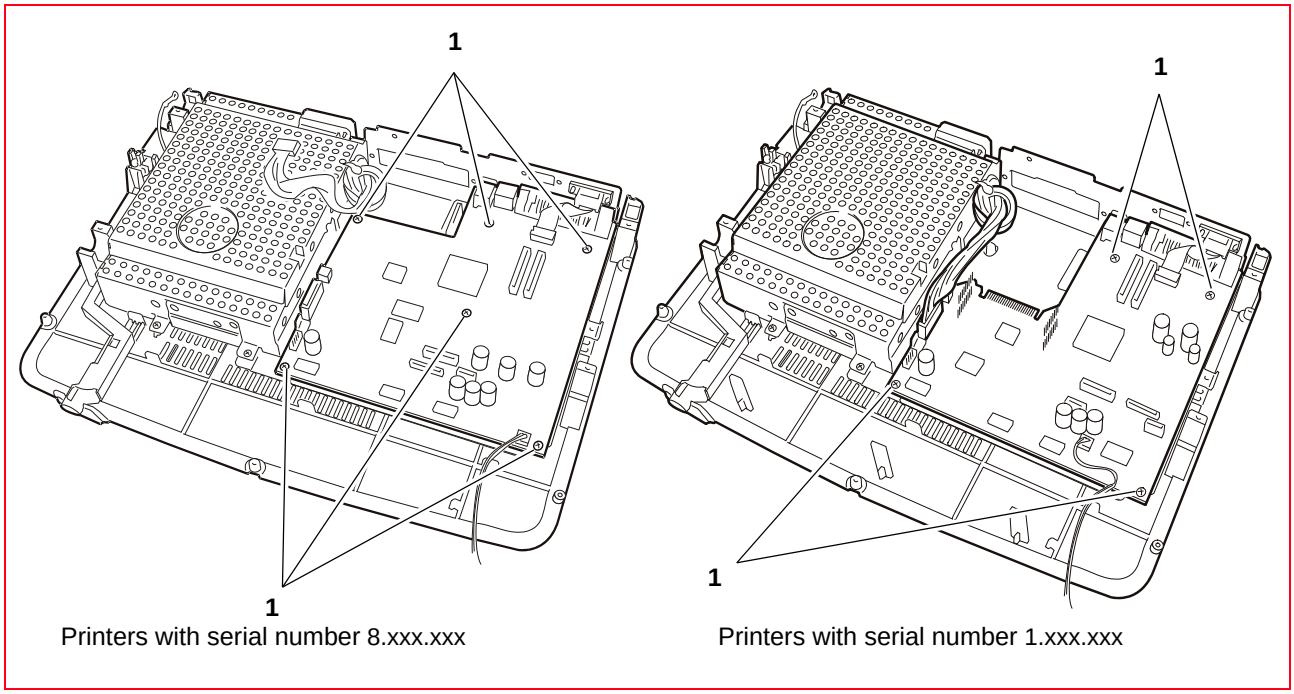


Figure 7 - 31 Fastening screws of motherboard

6. Disconnect the cable of the standard serial interface (**1**).

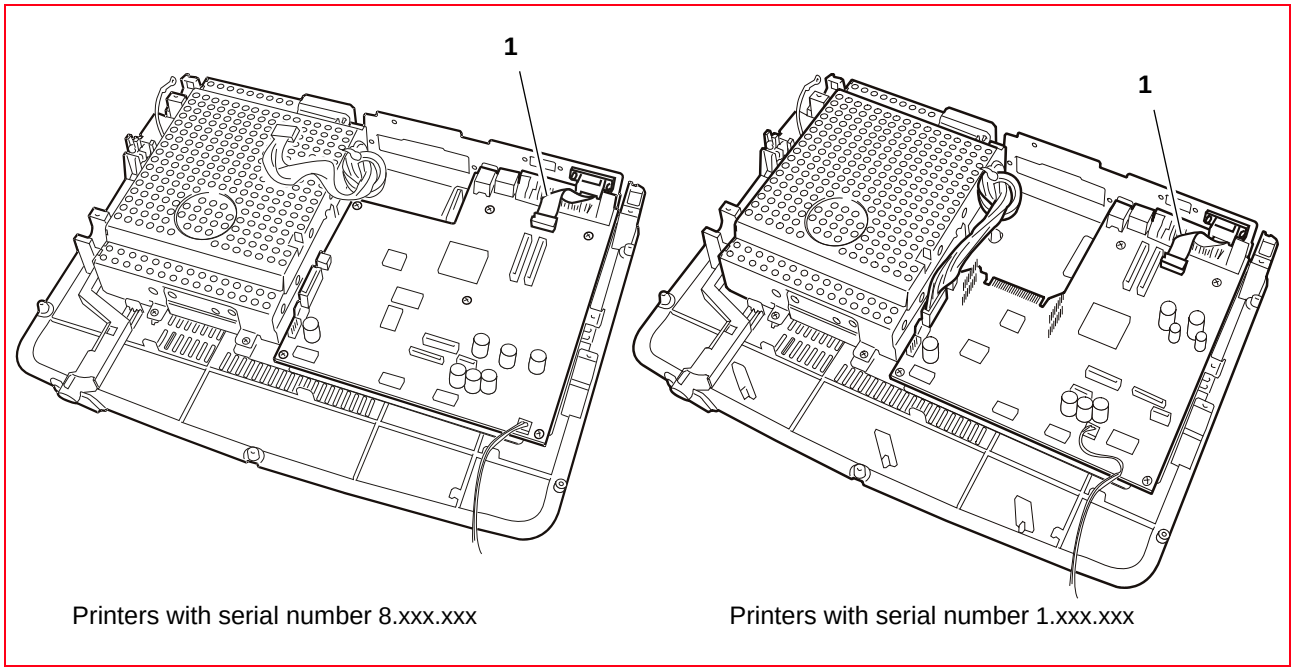


Figure 7 - 32 Cable of the standard serial interface

NOTE: if present disconnect the cable of the optional serial interface.

7. Back off the two screws **(1)** of the Centronics interface connector and extract the motherboard from the baseplate of the printer.

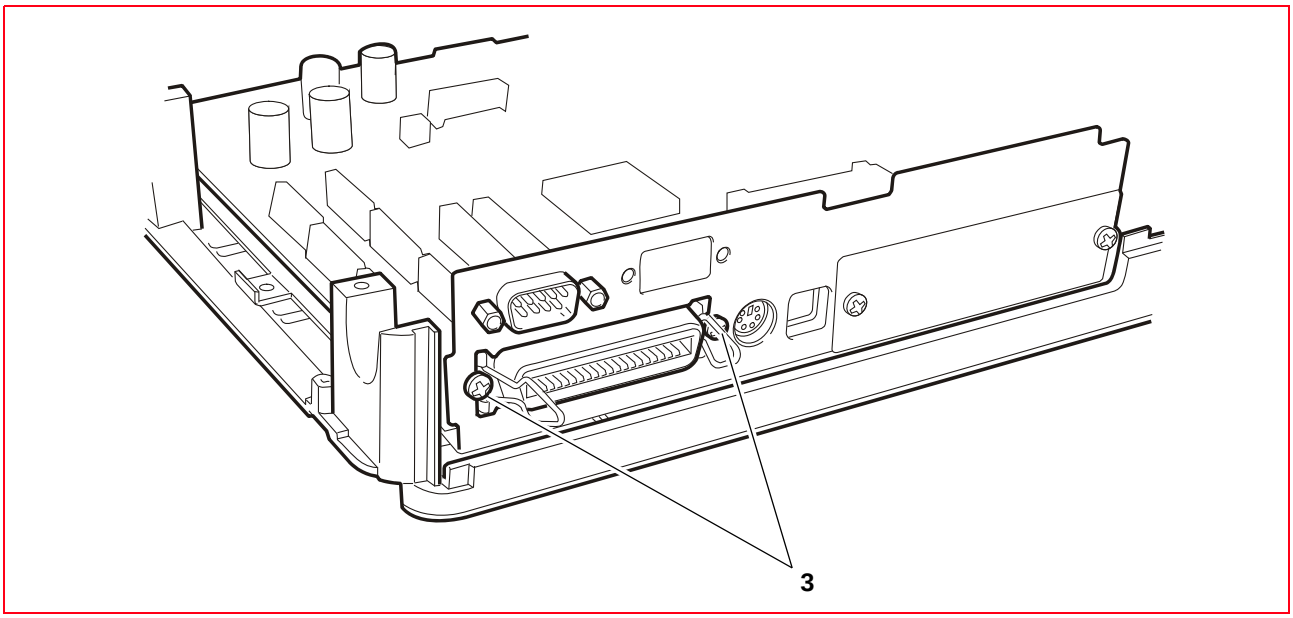


Figure 7 - 33 Parallel interface connection screws

NOTE: when replacing the board, update the firmware with the latest release, configure the parameters (see the section “CONFIGURING THE OPERATION PARAMETERS” on page 4 - 1) and calibrate the photosensors (see the section “CALIBRATING THE PHOTOSENSORS” on page 4 - 18).

WARNING: when reassembling the motherboard, tighten the screws of the earth connections for both the board and the power unit, ensuring a perfect grounding.

Fan power supply unit disassembly/reassembly

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. Remove the upper mechanical assy. See the section “Mechanical assy disassembly/reassembly” on page 7 - 6.
3. Back off the two lock-screws **(1)** of the fan.
4. Disconnect the power cord **(2)** and extract the power supply unit fan.

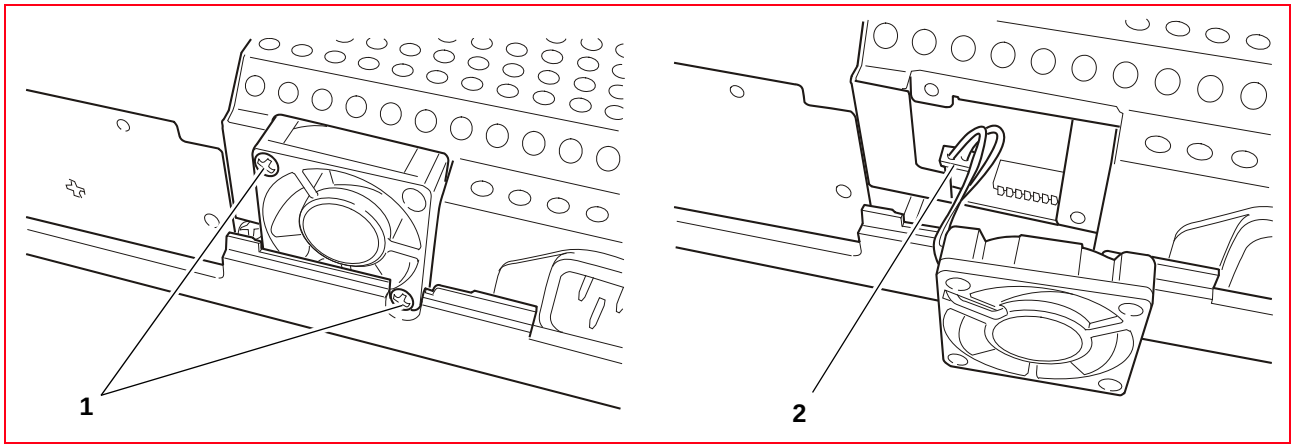


Figure 7 - 34 Disassembling the fan power supply unit

Power supply unit disassembly/reassembly

NOTE: If the fuse inside the power supply unit has blown, replace the entire unit as some of the components on the power supply unit board could be faulty.

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. Disassembling the mechanical assy. See the section “Mechanical assy disassembly/reassembly” on page 7 - 6.
3. Detach all the connections to the motherboard and disassemble the mechanical assy. See the Figure 7 - 25 for the printers with scanner or see the Figure 7 - 29 for the printers with serial number 8.xxx.xxx and 1.xxx.xxx.
4. Loosen the 2 lock-screws **(1)** of the switch.

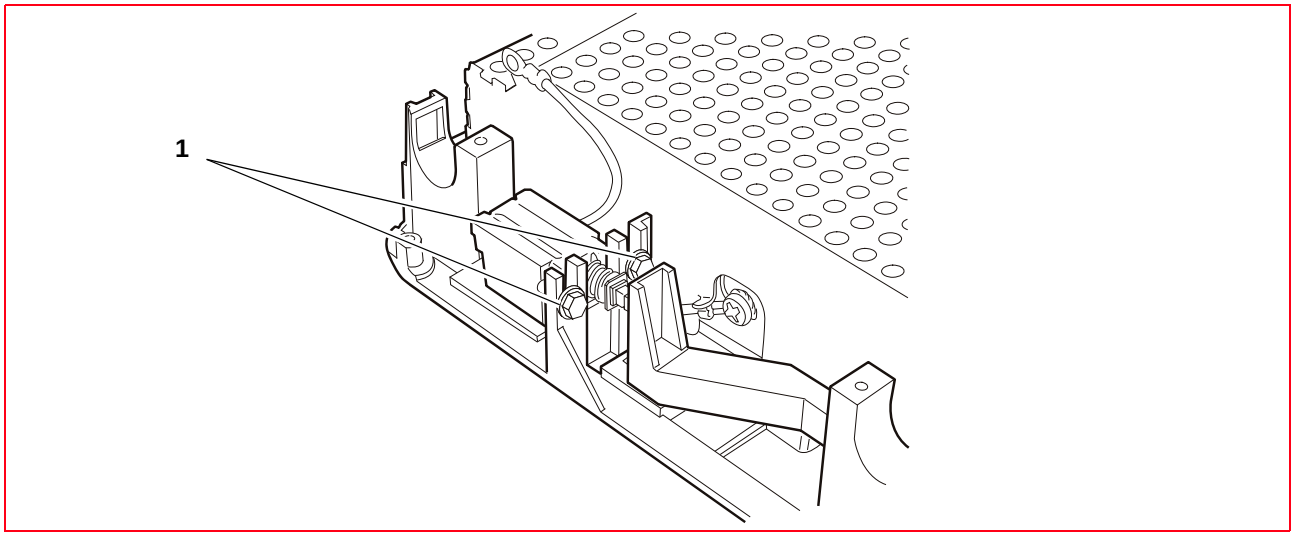


Figure 7 - 35 Fastening screws for switch

5. Back off the four lock-screws **(2)** of the power supply unit, also removing the ground cables.

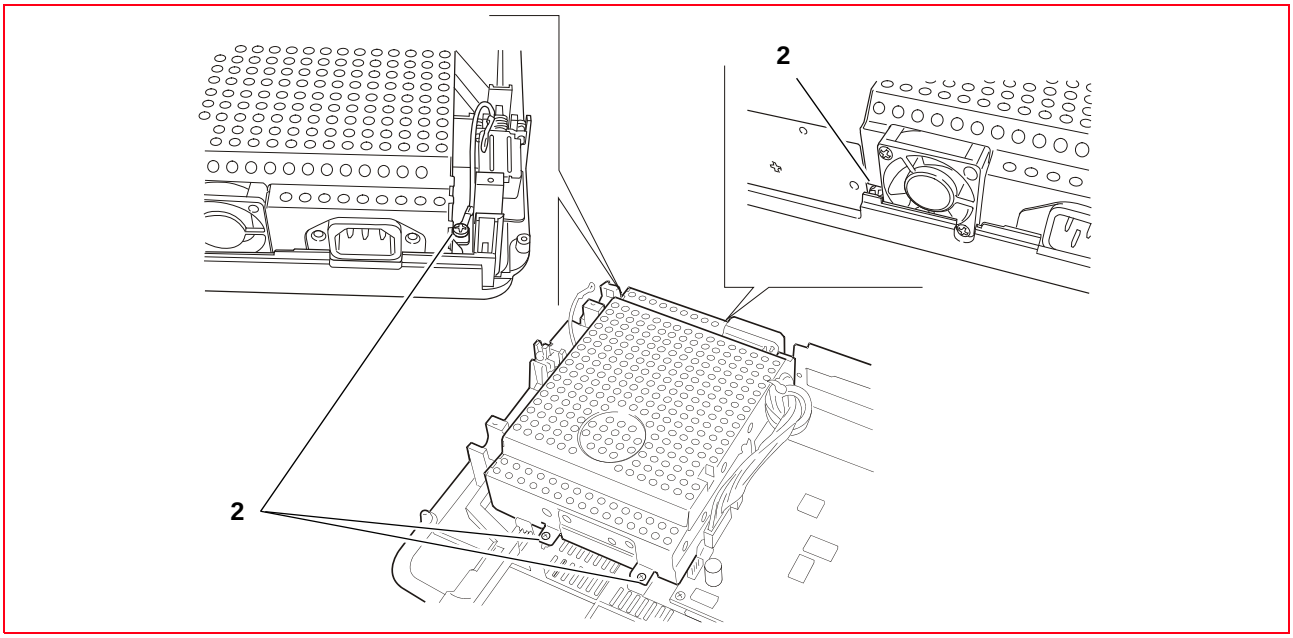


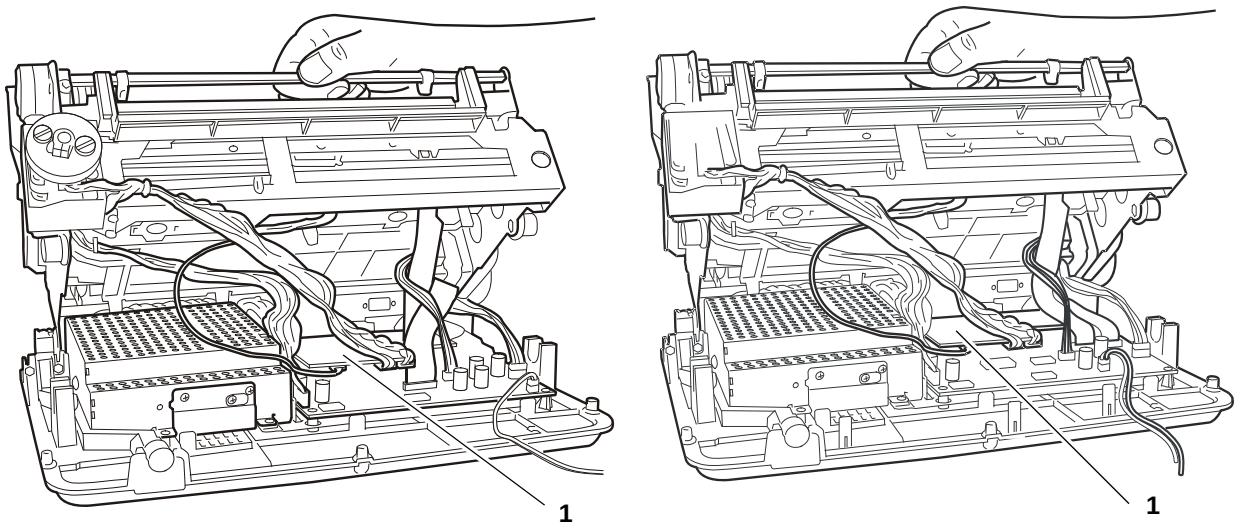
Figure 7 - 36 Fastening screws for power unit

6. Extract the power supply unit.

NOTE: during reassembly, pay particular attention to correct repositioning of the ground cables. If the unit is replaced, check that the power voltage is correct.

Horizontal magnetic/MICR disassembly/reassembly

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. From the front, lift the entire mechanical assy from the baseplate and rotate it partially so as to access the connectors on the horizontal magnetic board (**1**).



Printers with serial number 8.xxx.xxx

Printers with serial numbers 1.xxx.xxx

Figure 7 - 37 Disconnecting cables

3. Detach the connectors of the cables connected to the horizontal magnetic board.
4. Back off the two lock-screws that fasten the assy to the structure of the machine and disassemble the option.

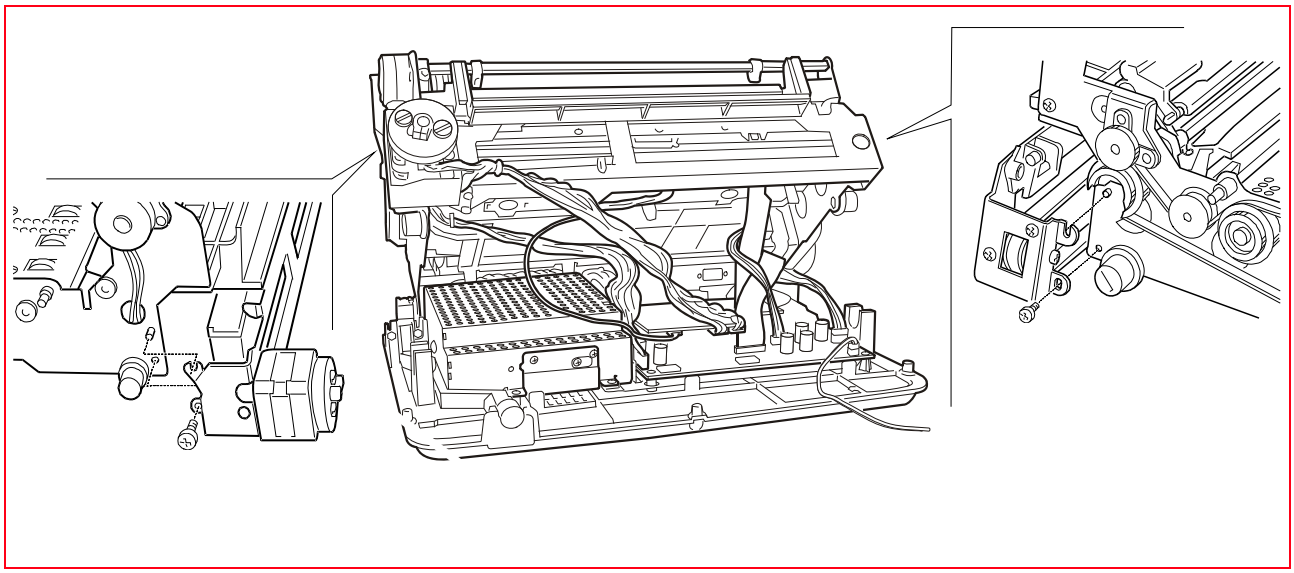


Figure 7 - 38 Fastening screws for horizontal magnetic unit (printers with serial number 8.xxx.xxx)

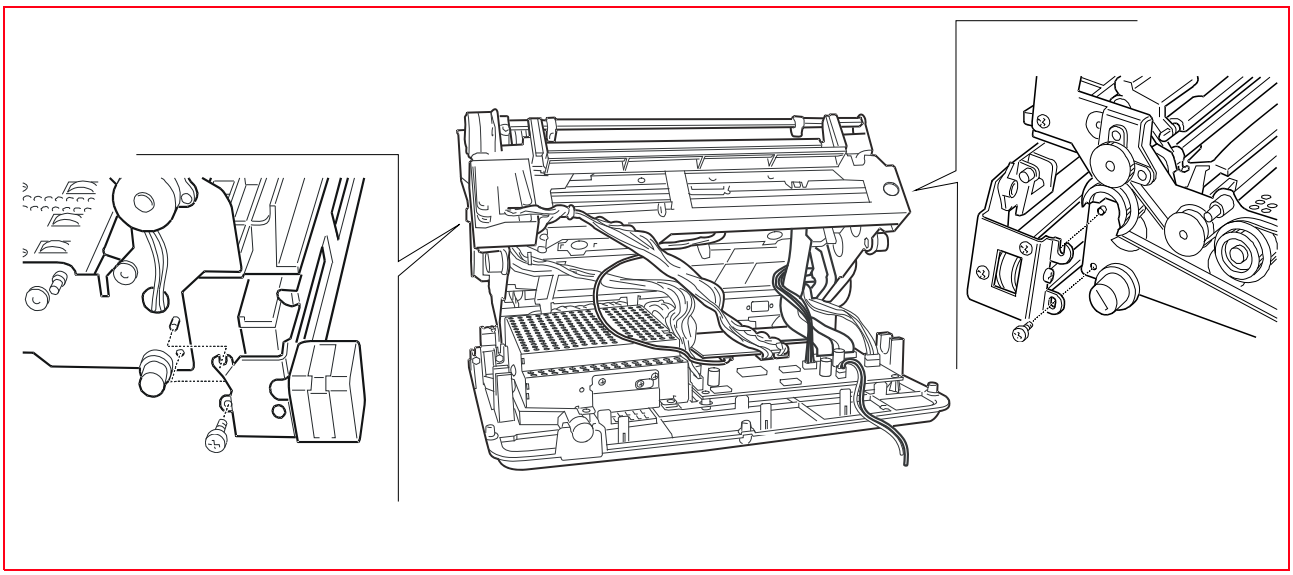


Figure 7 - 39 Fastening screws for horizontal magnetic unit (printers with serial number 1.xxx.xxx)

NOTE: during reassembly, adjust positioning of the assy on the structure. See the section “Positioning the assy on the horizontal magnetic/MICR structure” on page 6 - 14.

Horizontal magnetic/MICR motor disassembly/reassembly

1. Remove the horizontal magnetic/MICR assy. See the section “Horizontal magnetic/MICR disassembly/reassembly” on page 7 - 28.
2. Loosen the two nuts **(1)** and remove the motor with related protection shield.

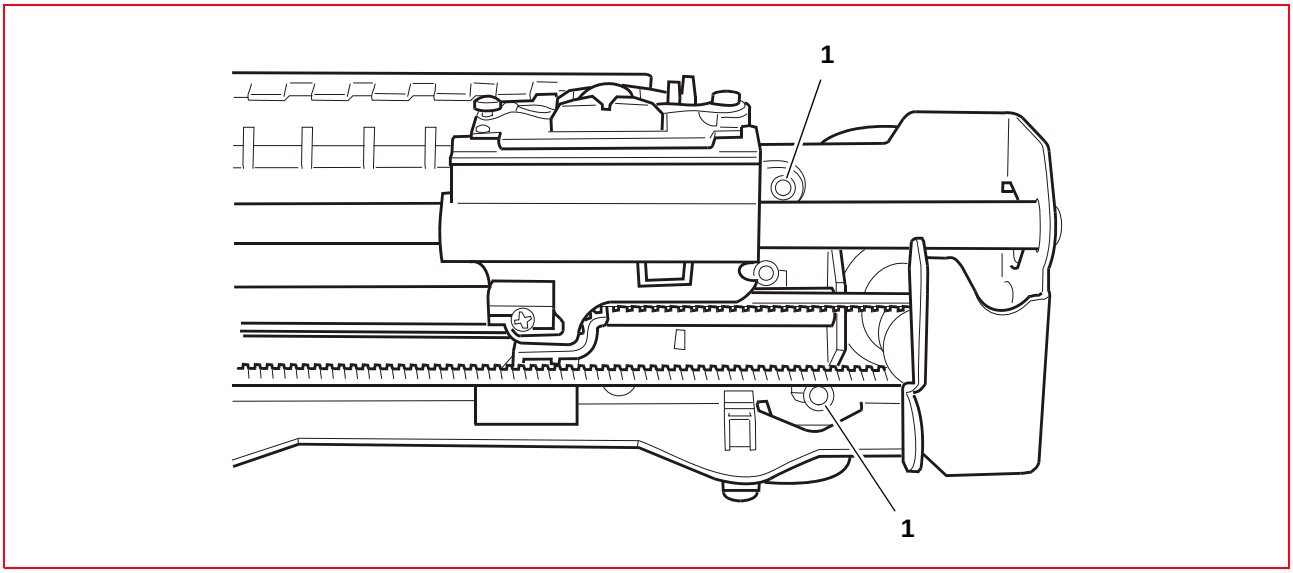


Figure 7 - 40 Horizontal Magnetic motor lock-nuts

Horizontal magnetic/MICR printhead assy disassembly/reassembly

1. Remove the horizontal magnetic/MICR assy. See the section “Horizontal magnetic/MICR disassembly/reassembly” on page 7 - 28.
2. Loosen the screw **(1)** and free the signals cable.
3. Loosen the screws **(2)** and extract the MICR printhead **(3)**.

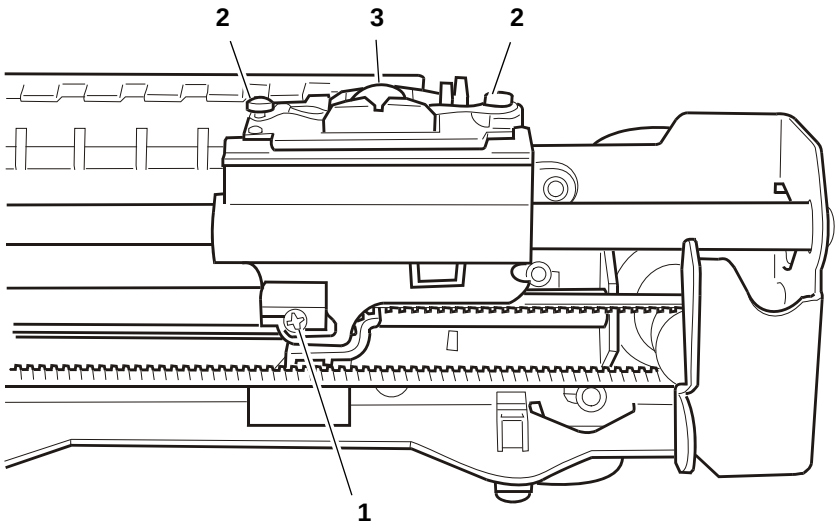


Figure 7 - 41 Horizontal magnetic/MICR printhead assy

Roller assy (upper scanner) disassembly/reassembly

1. Remove the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. Remove the upper mechanical assy. See the section “Upper mechanical assy disassembly/reassembly” on page 7 - 11.
3. Back off the four lock-screws **(2)** of the roller assy **(1)**.
4. Remove the roller assy **(1)** lifting this as indicated in the figure and taking care not to mislay the transmission shaft **(3)**.

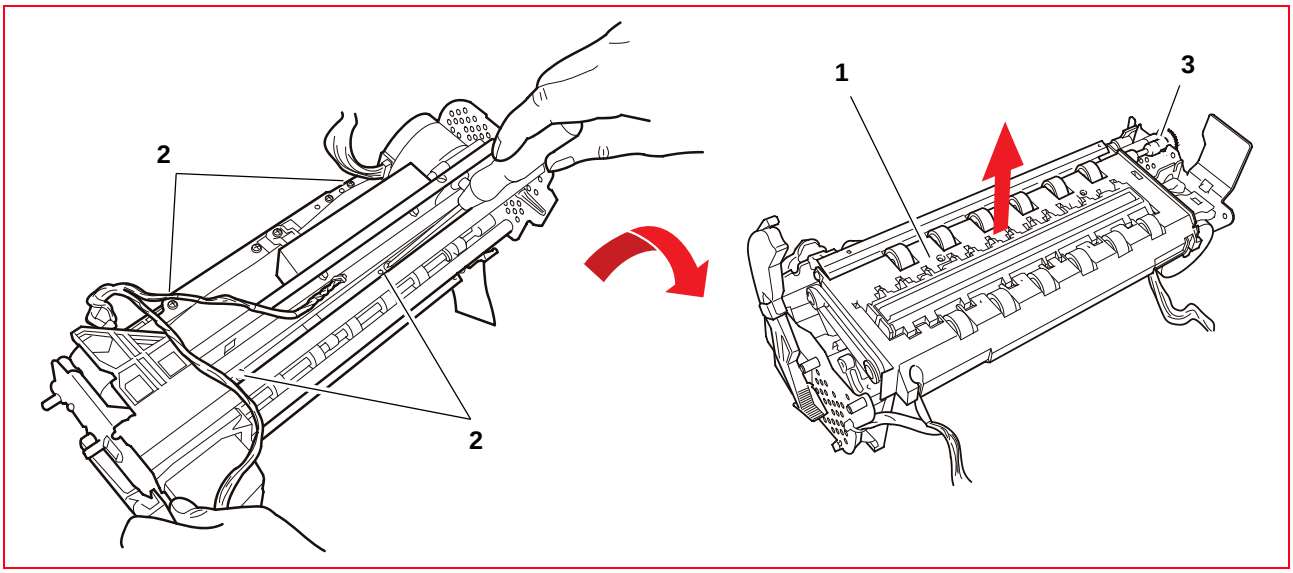


Figure 7 - 42 Disassembling the roller assy (upper scanner)

5. Remove the clamps **(4)** and recover the clips **(5)**.

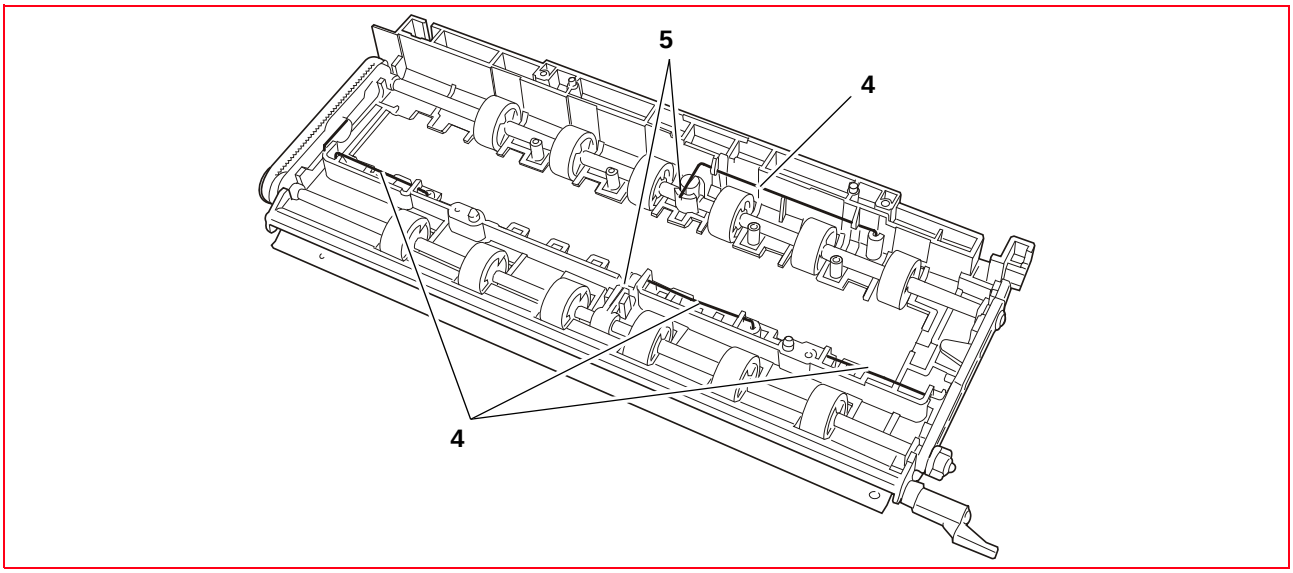


Figure 7 - 43 Clamps fastening roller unit

6. Remove the rollers **(6)** from the support **(7).**

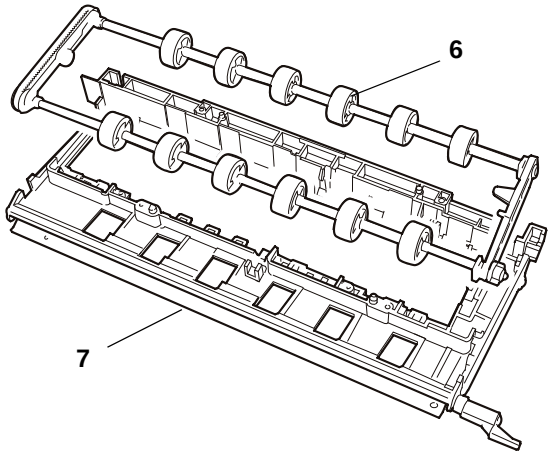


Figure 7 - 44 Removing the rollers

7. Remove the snap ring **(8)** and related gear (**9**).
8. Remove the drive belt (**10**).

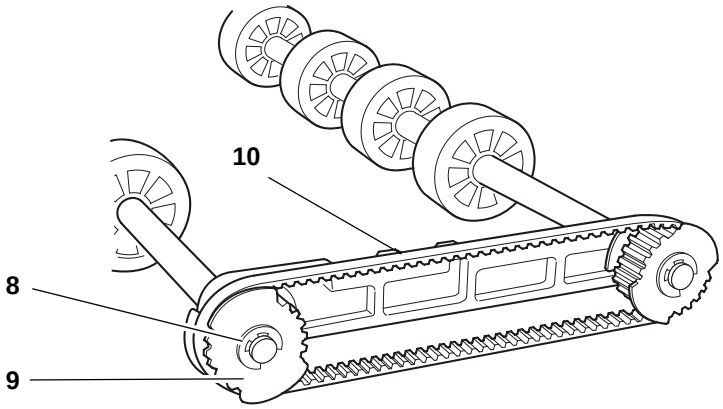


Figure 7 - 45 Removing the transmission belt

9. Remove the snap ring **(11)**, the cam **(12)** and the spring **(13)**.
10. Slide out and remove the shaft (**14**).

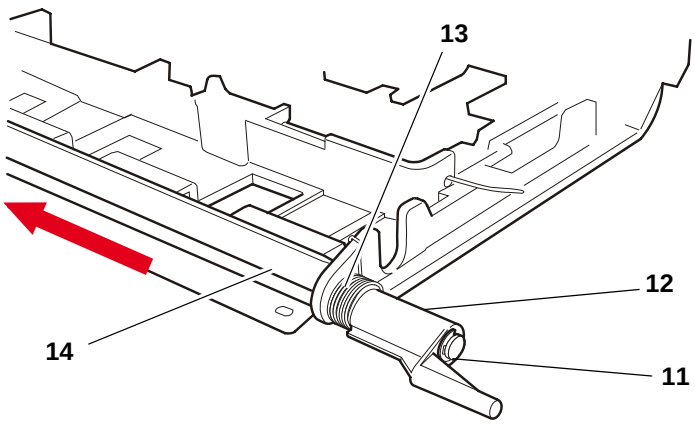


Figure 7 - 46 Removing the scanner shaft

CIS assy (upper scanner) disassembly/reassembly

1. Remove the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. Remove the upper mechanical assy. See the section “Upper mechanical assy disassembly/reassembly” on page 7 - 11.
3. Remove the roller assy. See the section “Roller assy (upper scanner) disassembly/reassembly” on page 7 - 31.
4. Remove the two snap rings **(1).**
5. Remove the CIS assy (2) lifting it and taking care not to mislay the spring **(3)**.

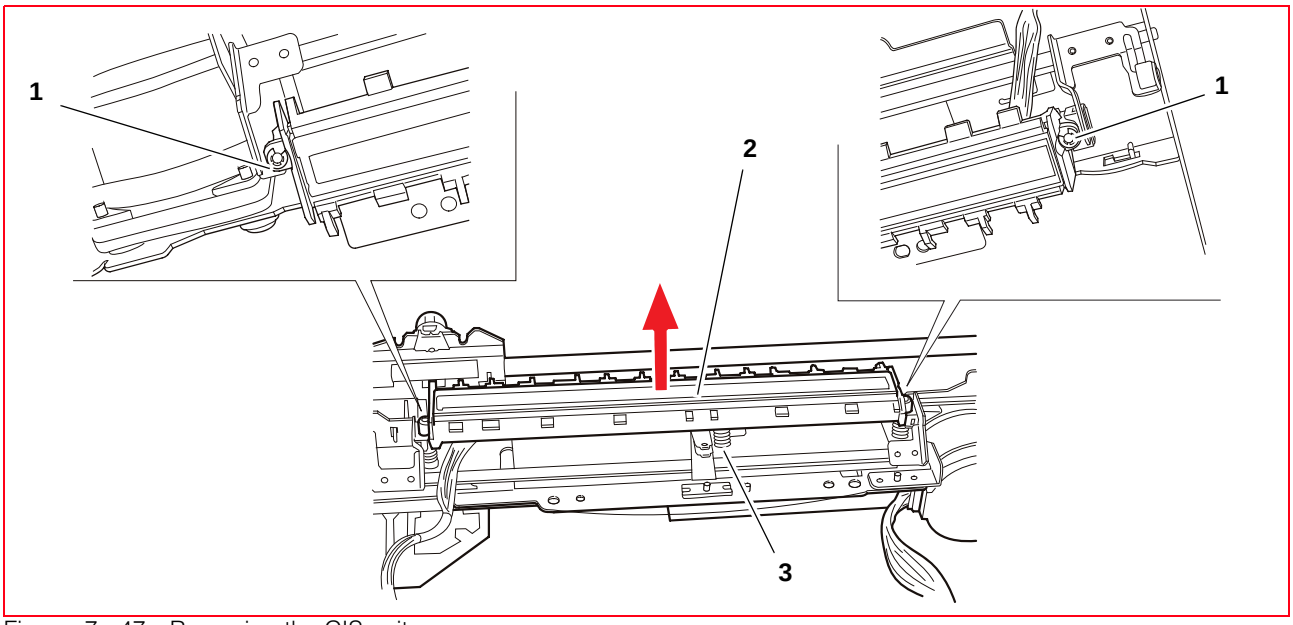


Figure 7 - 47 Removing the CIS unit

6. Disconnect the cable **(4)** from the CIS **(2)** taking great care not to damage the connectors (use a slotted screwdriver as indicated in the figure).

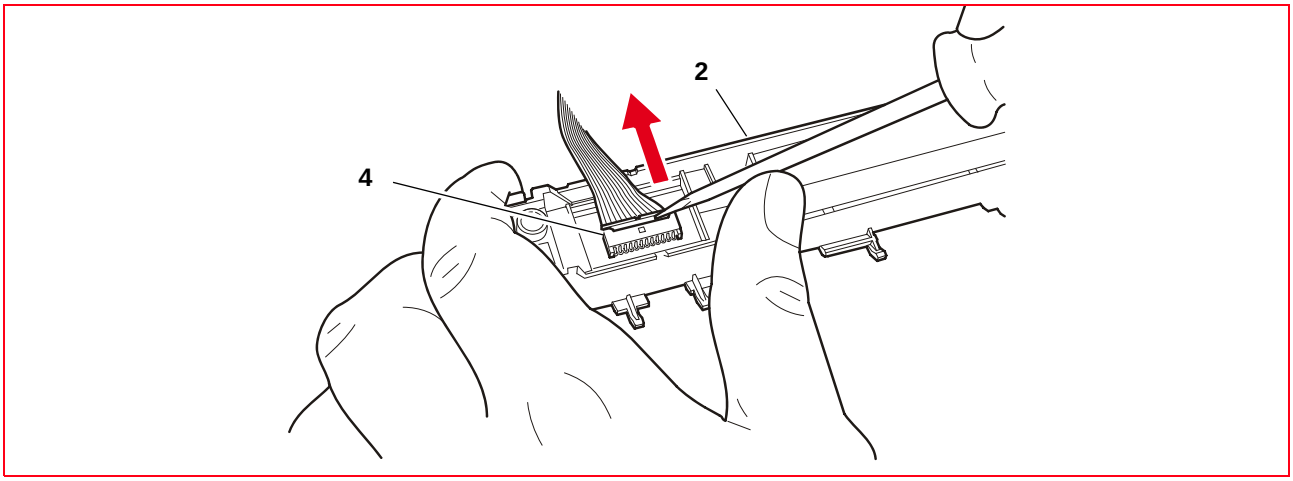
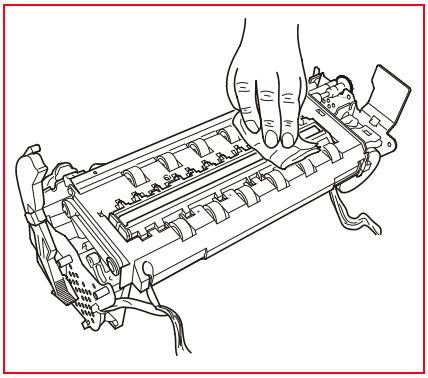


Figure 7 - 48 Disconnecting the CIS cable

NOTE: for reassembly, reverse the procedure, paying particular attention to correct fitting of the spring (**3**).
See the Figure 7 - 47.

Clean the glass of the CIS with a soft cloth.

After completing the re-assembly procedure, carry out mechanical adjustment and calibration of the scanner (see the section “Calibrating the scanner” on page 4 - 28).



CIS assy (lower scanner) disassembly/reassembly

1. Disassembling the casing. See the section “Casing disassembly/reassembly” on page 7 - 4.
2. Remove the upper mechanical assy. See the section “Upper mechanical assy disassembly/reassembly” on page 7 - 11.
3. Remove the roller guard **(1)** removing the related M3 lock-screws **(2)** and release the cable **(3)** from the cable clips **(4)**.

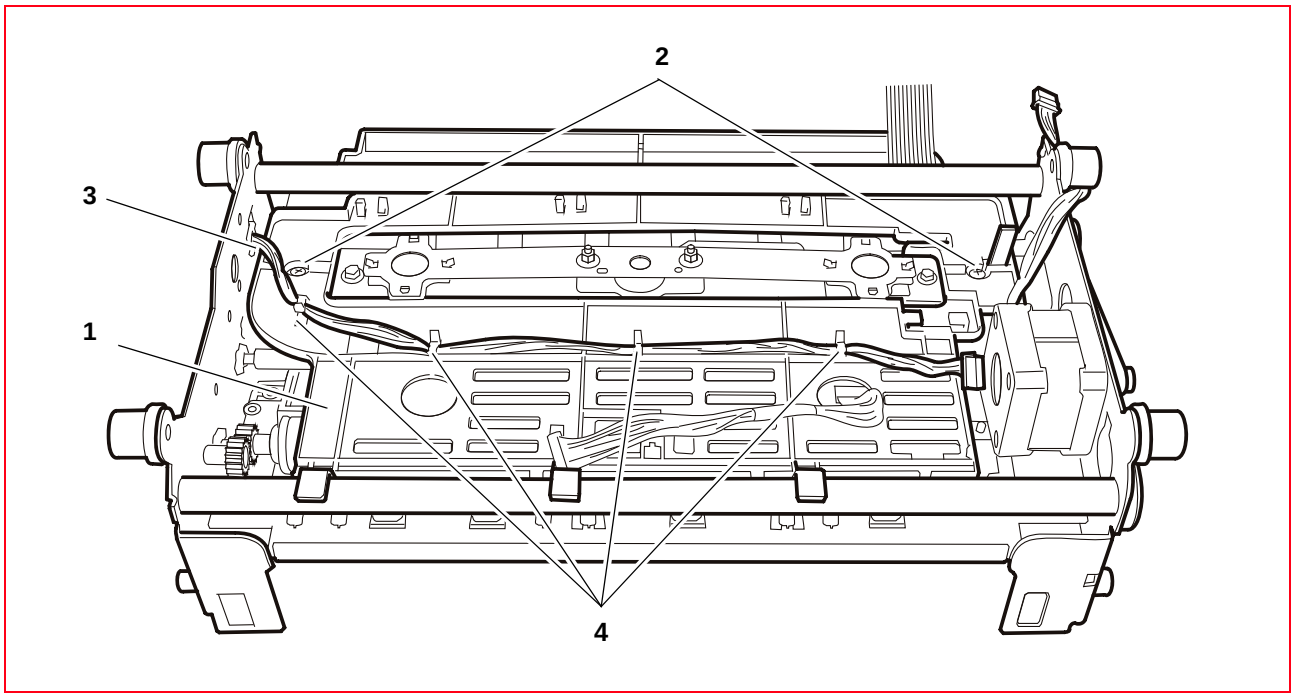


Figure 7 - 49 Disassembling the CIS assy (lower scanner)

4. Disconnect the cable **(5)** from the connector on the CIS proceeding very carefully in order to avoid damaging the connectors (use a slotted screwdriver).

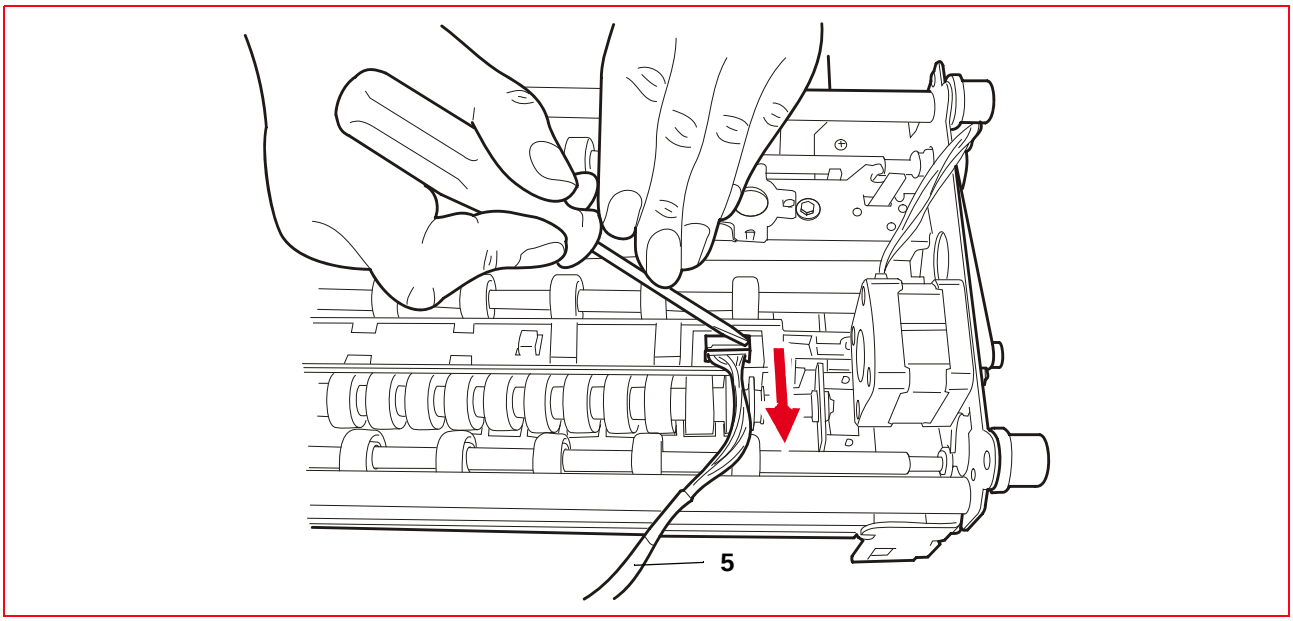


Figure 7 - 50 Disconnecting the CIS cable

5. Remove the snap ring (**6**).
6. Slide the bush **(7)** in order to free the shaft from the rotation housing, proceeding as shown in the figure.

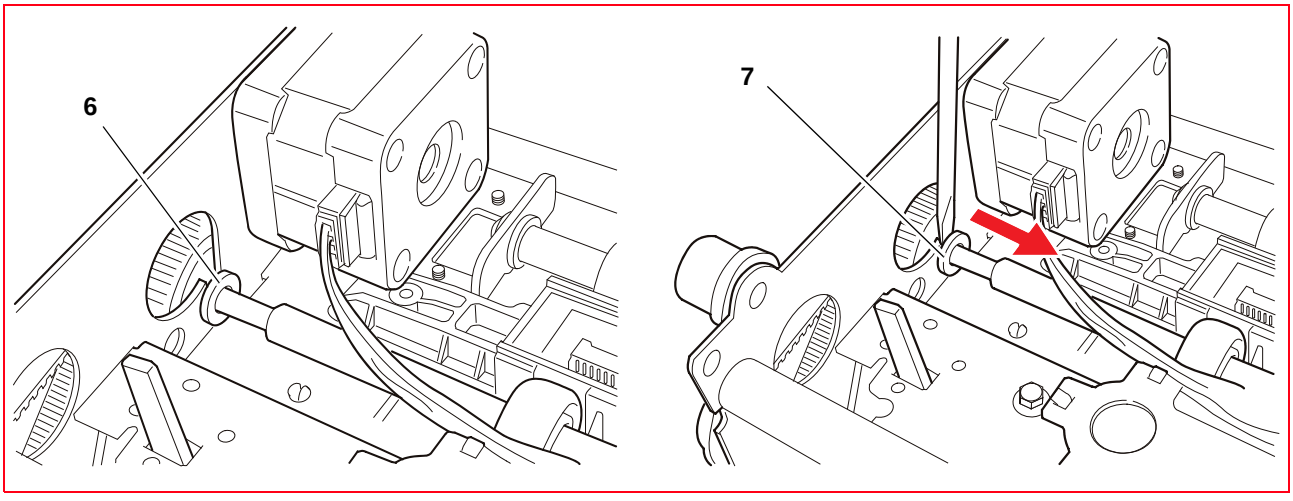


Figure 7 - 51 Removing the shaft from its rotation position

7. Press the clips **(8)** and remove the bush **(9)**, proceeding as shown in the figure.

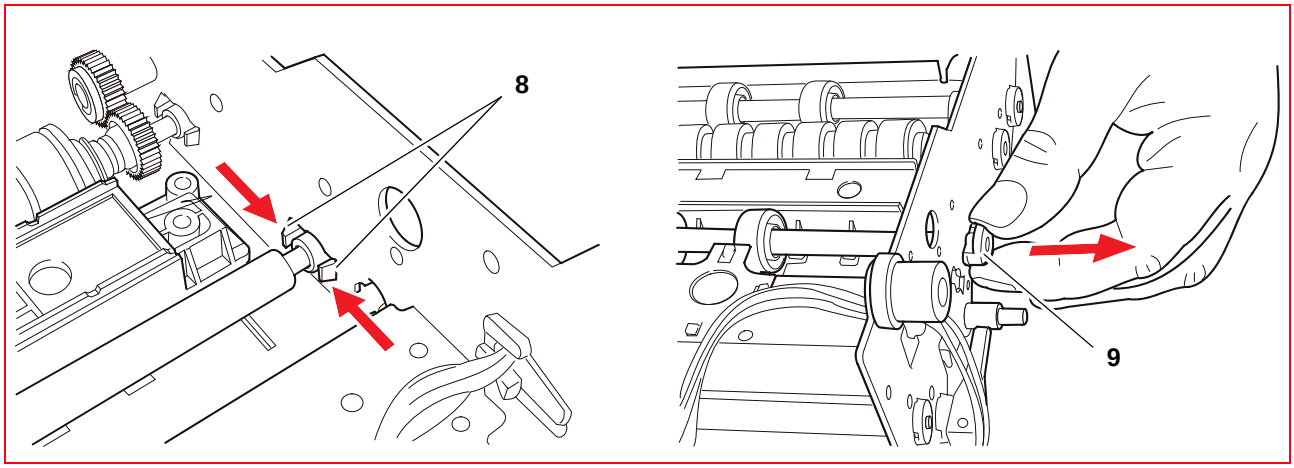


Figure 7 - 52 Removing the bushing

8. Remove the shaft **(10)** sliding it in the hole on the frame, as shown in the figure.

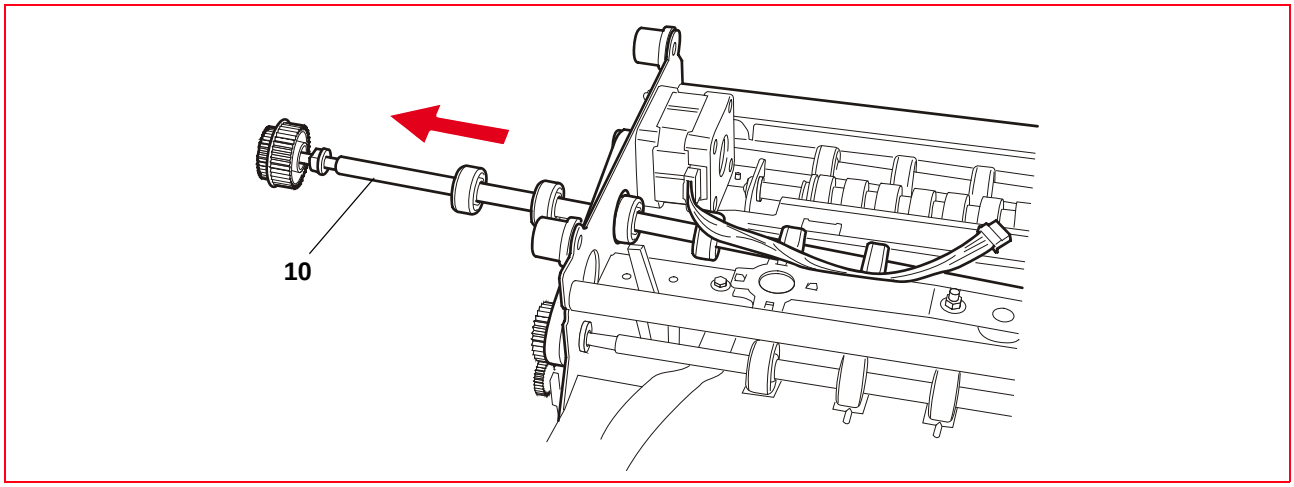


Figure 7 - 53 Removing the shaft

9. Turn over the lower mechanical assembly and unscrew the two screws **(11)** fastening the CIS unit **(12)**.

10. Removing the CIS unit **(12)** from the bottom.

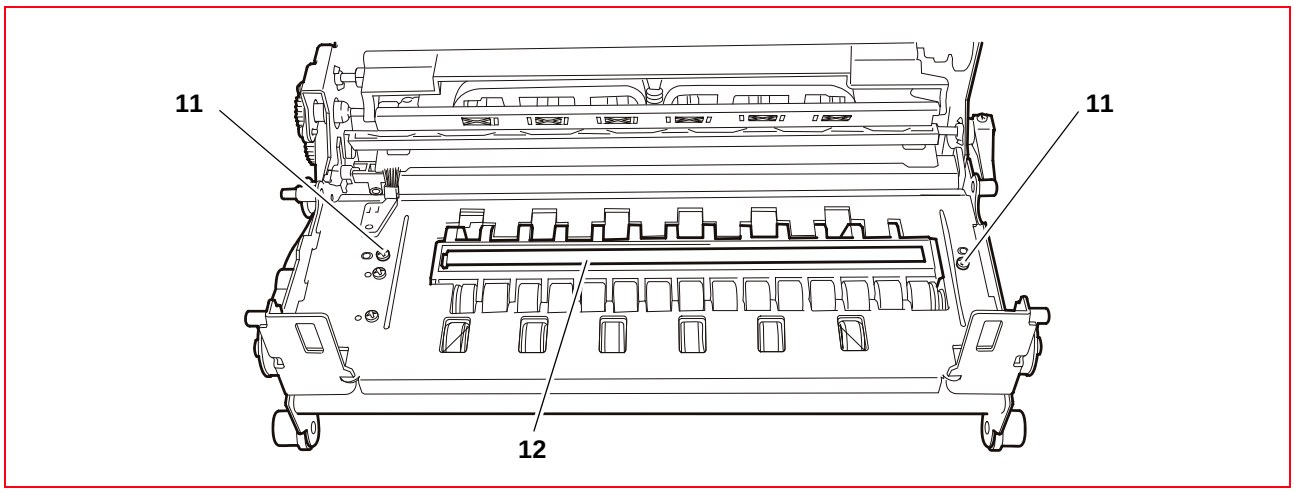
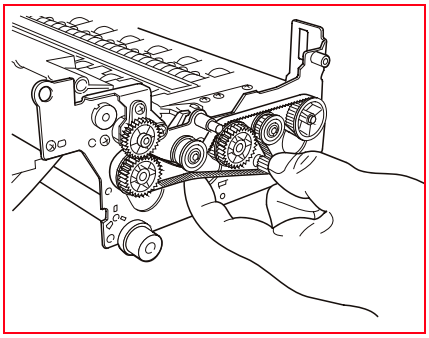


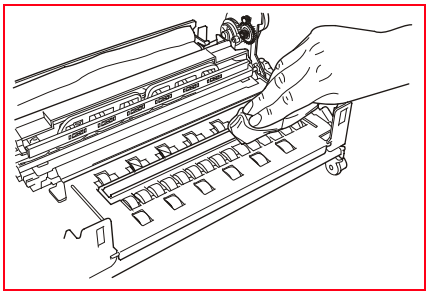
Figure 7 - 54 Removing the CIS unit

NOTE: for reassembly, reverse the procedure, paying attention to correct tensioning of the belt **(13)**.



NOTE: clean CIS glass with a soft cloth

After completing the reassembly procedure, proceed to calibrate the scanner (see the section “Calibrating the scanner” on page 4 - 28.



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Chapter 8 - INSTALLING THE OPTIONS

This chapter looks at how to install the expansion kit for the printer.

INSTALLING THE ETHERNET LAN CARD

WARNING: this option can be installed exclusively on the models: PR2 Plus printer 10, PR2 Plus 12 and PR2 Plus 12 M with firmware version 4.06 Vers.126 or later.

Installation kit contents

The package contains:

1. Ethernet LAN Card;
2. Mounting Screws;
3. Instruction references.

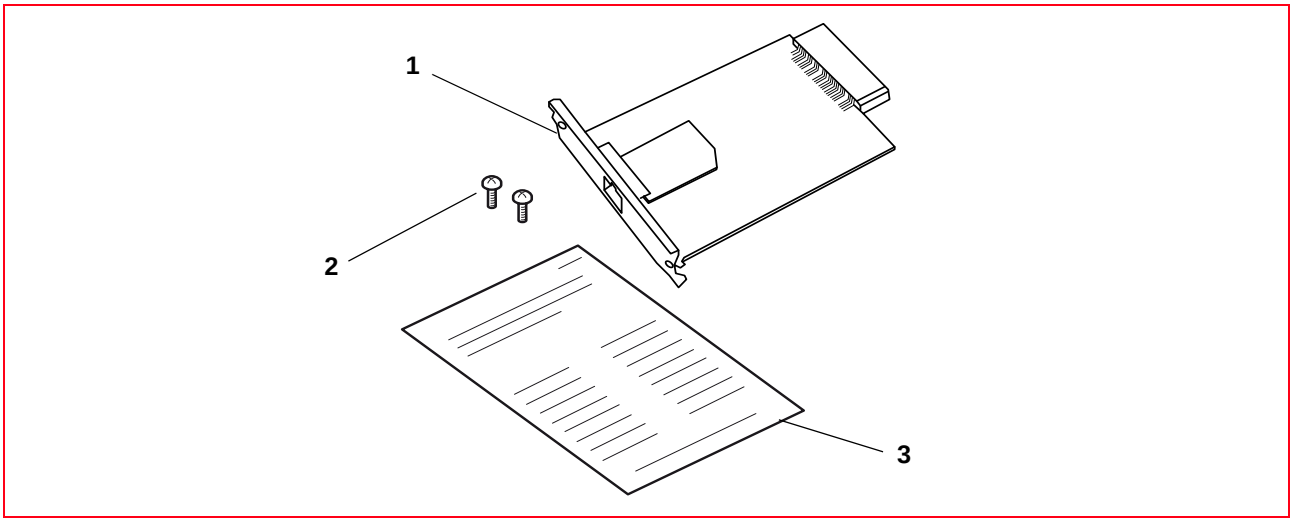


Figure 8 - 1 Contents of package

WARNING: preserve the original packagings.

Installation procedure

1. Disconnect all printer's cables, including power cable (safety first!).
2. Use a screwdriver or a punch to break the metal shield on back of the printer as indicated in the following figure.

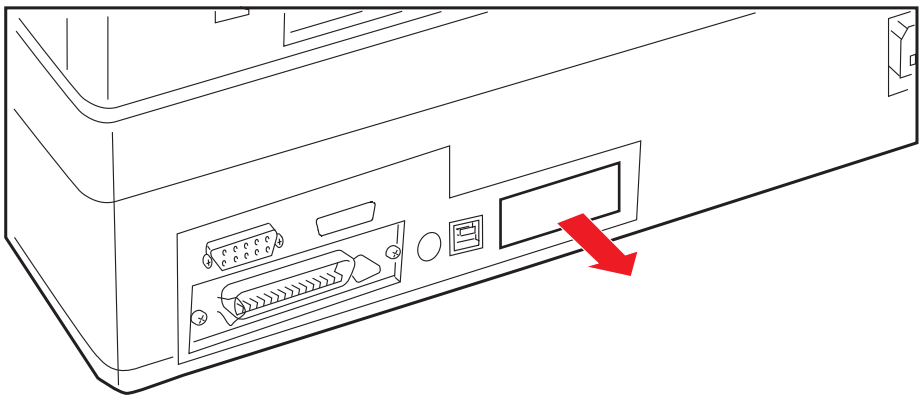


Figure 8 - 2 Removing the metal shield on back of the printer

3. Insert the LAN card in the hole, with circuit board on bottom.
4. When card touch the bottom of the hole, push on both sides until the Ethernet LAN Card lock in position.
5. Tighten both screws to fix the Ethernet LAN Card.

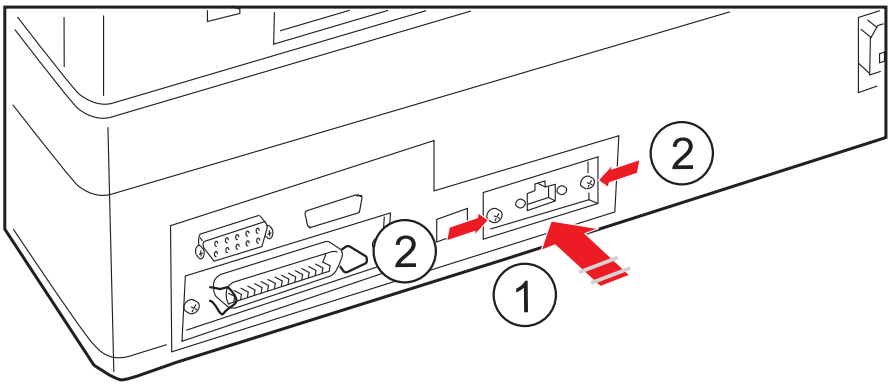


Figure 8 - 3 Inserting the Ethernet LAN Card

6. Install the Ethernet LAN Card drivers following instructions supplied with software drivers.
7. If necessary, configure the Ethernet LAN Card.

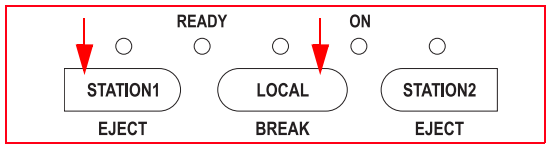
NOTE: the Ethernet LAN Card needs to be reconfigured only if you want to change the default configuration (DHCP first, AutoIP second), for example, assigning a static IP address to the board.

8. Enable the Ethernet LAN Card from the programming menu (see the section “CONFIGURING THE OPERATION PARAMETERS” on page 4 - 1) or using the Toolbox application.

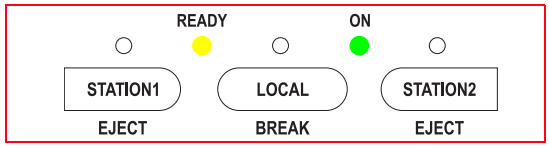
9. When the printer configuration is complete, activate the printing test (see the section “Activating and deactivating the print test” on page 2 - 10) in the CONFIG. section the following string should appear:

How to print Ethernet LAN card properties

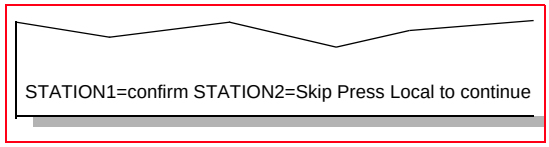
1. Power on the printer with **STATION1** and **LOCAL** keys pressed together.



2. At the end of the phase for resetting the mechanics, check that the **ON** and **Ready** LEDs are illuminated.



3. Insert a sheet in A4 format into the front slot.
4. A line of text is printed which indicates the functions of the **STATION1**, STATION2 and LOCAL keys for the printer in the current configuration.



5. Press **STATION1** key and the printer will print the Ethernet LAN Card settings (insert a new A4 document if needed).

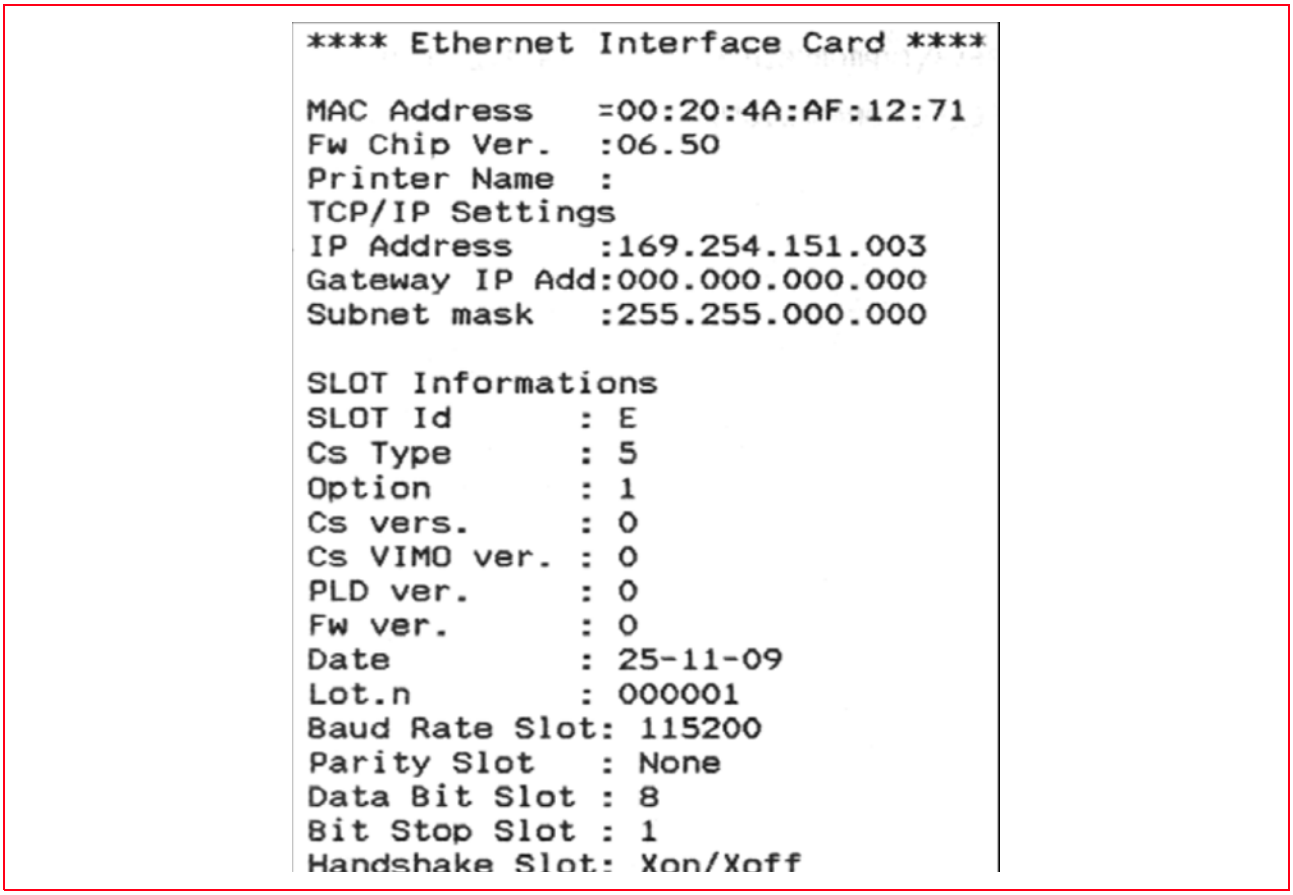


Figure 8 - 4 Ethernet LAN Card settings

NOTE: the Ethernet LAN Card ships with a default IP address of 0.0.0.0, which automatically enables DHCP and AutoIP within the unit. AutoIP address range is from 169.254.1.0 to 169.254.254.255 and works in small networks when a DHCP server isn't active.

WARNING: if the printer PR2 Plus do not show in configuration tool the printer might need a firmware update, contact your Olivetti dealer for the last firmware release.

APPENDIX A

ACCESSORIES

This section describes the accessories available for the PR2 plus printer.

Ribbon cartridge in black NYLON SNUG CART

The ribbon cartridge provided for the product is of disposable type.

It is designed in way that allows the operator - following the indications given both in the manual and on the container of the new ribbon - to carry out the operations required for its replacement without coming into contact with the inked ribbon.

Colour	Black
Pigmentation	Carbon-free
Vita ribbon	10 million characters (draft mode, 40% contrast)
no. ribbons/year	1,9
no. ribbons/ life-time	9,4
Packaging	Waterproof with protective box

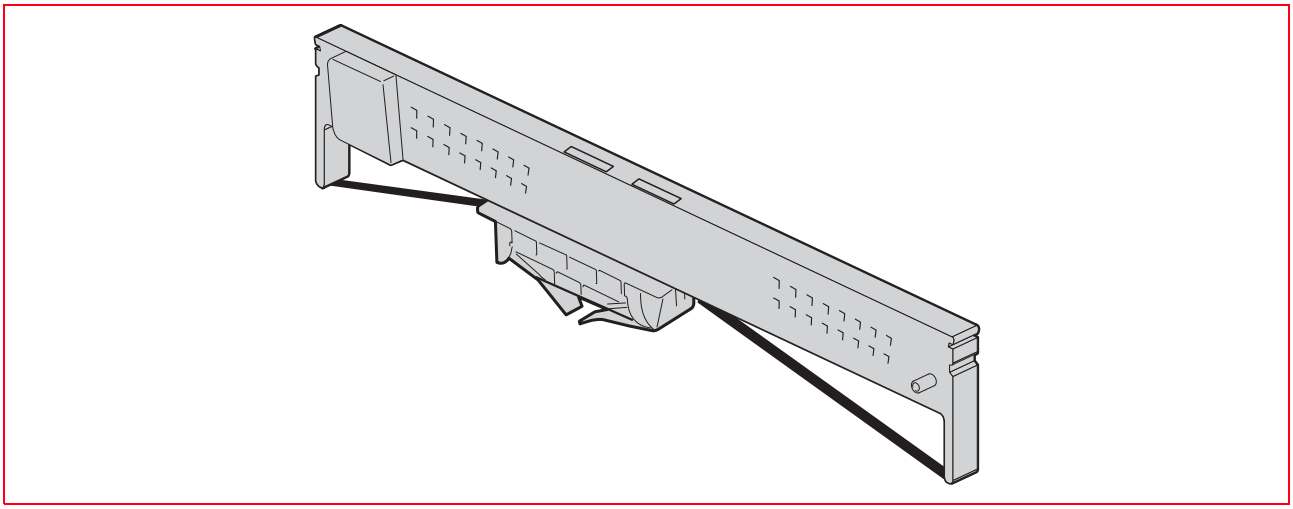


Figure A - 1 Ribbon cartridge

Ribbon cartridge in NYLON SNUG CART - indelible

Same as the BLACK NYLON SNUG CART but with indelible ink.

FONT AND CHARACTER SET

All character generators, fonts and codepages available in the various emulations and versions are preloaded in the basic version (including the DAECO).

Print speed and definition

Mode	*CPS*	*Copies*	*Matrix (V x H)*	*Definition (V x H)*
VHSD	560	1+1	24 x 4 +3+1	1/80" H 1/180" V
HSD	510	1+2	24 x 4 +3+2	1/90" H 1/180" V
Draft	370	1+4	24 x 5 +4+3	1/120" H 1/180" V
NLQ	185	1+5	24 x 18+6	1/240" H 1/180" V
LQ	125	1+6	24 x 36	1/360" H 1/180" V
BIM (min.)	2000 (dps)			1/120" H 1/180" V
BIM (max.)	2000 (dps)			1/360" H 1/180" V

Attributes

Available fonts (depending on the active emulation)

- Alphanumeric
  - native;
  - roman;
  - sans serif;
  - courier.
- Optical reading:
  - OCR-A;
  - OCR-B single-row.

Barcodes

Maximum packing of the barcode (module) depends on the dimensions of the needle of the printhead. Modules from 0.25 mm and multiple integers are possible.

Types of barcodes supported:

- EAN 8 - code 39;
- EAN 13 - 2 of 5 interleaved;
- UPC-A - 2 of 5 industrial;
- UPC-E - Codabar;

Character attributes

- normal;
- boldface;
- subscripts;
- superscripts;
- italics;
- double width;
- double height;
- double height and width;
- horizontal and vertical zoom.

CERTIFICATIONS AND APPROVALS

Certifications and approvals - 230V power supply unit version

Safety		
CE Marking: compliance with standards	EN 60950	

Electromagnetic Compatibility		
CE Marking: compliance with standards	EN 55022	
	EN 55024	
	EN 61000-3-2	(harmonics)
	EN 61000-3-3	(flicker)

Environmental Compatibility	
Recycling: Directive	WEEE (2002/96/CE)
Hazardous substances: directive	ROHS (2002/95/CE)

Certifications and approvals - 115V power supply unit version

Safety	
International Marks: compliance with standards	C-TUV/NRTL-US

Electromagnetic Compatibility	
FCC Marking	Class A

Environment specifications

Reference standards		
Operating	Temperature	+15 ÷ +35 °C
	Humidity	35 ÷ 85 % (non condensing)
Stand-by	Temperature	-10 ÷ +60 °C
	Humidity	10 ÷ 90 % (non condensing)

FIRMWARE AND CHARACTER GENERATORS

Machine firmware

In addition to that separate from the generator and from the set characters, the management firmware of the printer is controlled independently in load operations in order to facilitate immediate access for modifications to the characters area.

The basic memory of the printer is a 1-MB Flash EPROM on which the management FW, character generators and characters sets are held and can be replaced on line.

A second Flash EPROM (optional) with the same capacity, able to contain complex character sets or high volumes of macros and logos, can be installed on the motherboard.

The machine firmware comprises the following emulations:

- Olivetti environment: STD 12/14 controlled protocol with native PR2 E environment and PR40+ and PR2845 emulation. Industry standard emulation IBM Proprinter II and Proprinter X24.
- IBM environment: Emulation protocol 9068 with coverage of the 4722 model, Industry standard emulation IBM Proprinter II and Proprinter X24.
- Wincor-Nixdorf environment: Emulation protocol SNI 4915 with coverage of models 4905, Industry standard emulation EPSON LQ 2550.

Character sets

System level compatibility for each character set extends the environments listed below:

ENVIRONMENT	***CHARACTER SET***
PC/DOS	CP SET, CODE PAGE
WINDOWS 2.X, 3.0; OS/2; UNIX	ISO 8859/X
WINDOWS 3.1	CP SET
OLIVETTI	STD 15

Each emulation present on the machine includes one or ore character sets. The character sets present in each emulation are listed in the table below:

EMULATION	***CHARACTER SET***
OLIVETTI	CP SET, STD 15 Olivetti, ISO
IBM	CP SET, ISO

Mode and character fonts

The characteristics of the various print modes are listed below:

	10 cpi	***12 cpi***	***15 cpi***
H.S.D. (High Speed Draft)	350 cps	314 cps	327 cps
DRAFT	260 cps	260 cps	260 cps
N.L.Q. (Near Letter Quality)	130 cps	130 cps	130 cps
L.Q. (Letter Quality)	86 cps	104 cps	131 cps

The reference standards for the printable optical characters are as follows:

Font	*Coding standard*	*Dimensions/std form*	*Print specifications*
OCR A	EUROBANKING	ISO 1073/1	ISO 1831
OCR B	EUROBANKING	ISO 1073/2	ISO 1831

Relationship between writing styles and emulation environment:

Emulations	*Writing styles*	*Selection*
PR50/PR2845	HSD, DRAFT, NLQ1, NLQ2, LQ2, OCRA, OCRB	FROM SET-UP
	DRAFT, NLQ1	FROM LINE
PR50/PR40+	HSD, DRAFT, NLQ1, NLQ2, LQ2, OCRA, OCRB	FROM SET-UP
	DRAFT, NLQ1, OCRA, OCRB	FROM LINE
PR2 E	HSD, DRAFT, NLQ1, NLQ2, LQ2, OCRA, OCRB	FROM SET-UP
	HSD, DRAFT, NLQ1, NLQ2, LQ2, OCRA, OCRB, ITALICO DRAFT ITALICO NLQ1, ITALICO NLQ2, ITALICO LQ2	FROM LINE
IBM PP II/X24	HSD, DRAFT, NLQ1, NLQ2, LQ2	FROM SET-UP
	DRAFT, NLQ1	FROM LINE

THE APPLICATION TOOLBOX

Using the Toolbox application (version 1.10_08 and later), you can obtain from the printer a series of data relating to its use.

This data relates both to the life of the printer (non-resettable data), and the life of any parts replaced following technical interventions (resettable data).

NOTE: the Toolbox application is available on request. Contact Technical Support.
Mail box: Banking.Printers@Olivetti.com

Firmware loading operations

On all models of the PR2 Plus, to update the firmware release, the Toolbox (version 1.10_08 and higher) must be installed.

NOTE: before installing the Toolbox, it is essential to remove any previous installation version from the Host.

For reasons of speed, it is advisable to update the firmware release using the USB port.

Proceed as indicated below:

1. Switch on the PR2 Plus holding down the Station 2 key in order to print the Self Test and check that the machine is set for USB data exchange (see the section “Configuration mode menu "MENU: CONFIG." parameters” on page 4 - 6 - Interface parameter). Otherwise, set the machine Set Up parameter correctly.
2. Switch off the printer.
3. Switch the printer on again after checking that it is connected to the Host via the USB cable.
4. Start the Toolbox application and select the **Resource Kit** icon.
5. Select the printer **FW icon**.

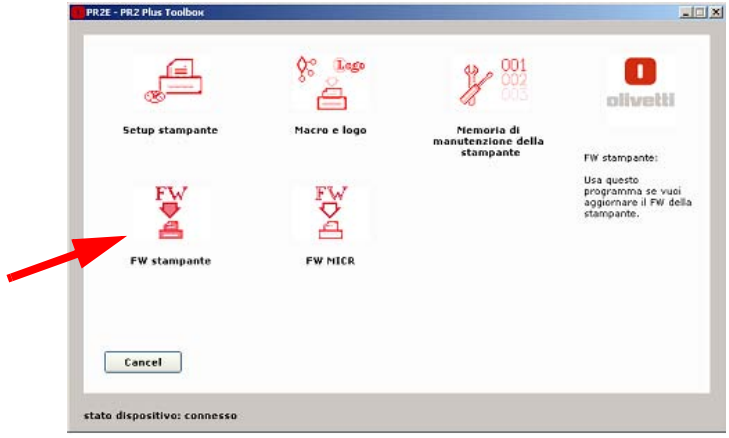


Figure A - 2 Toolbox application display

6. Check that only the **Firmware** item has been selected in the **File Format** area.
7. Select the **Open** key.

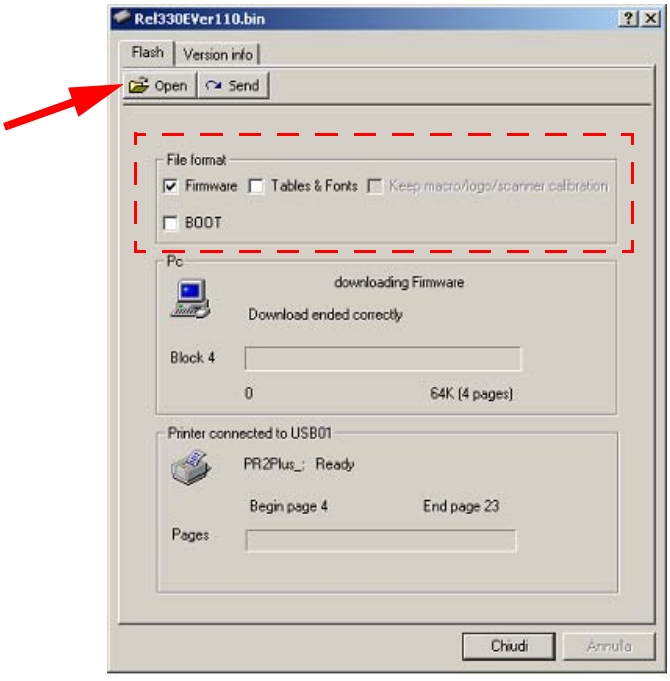


Figure A - 3 Firmware update display

8. Select the file containing the firmware to be transferred, confirming this with the **Open** key.

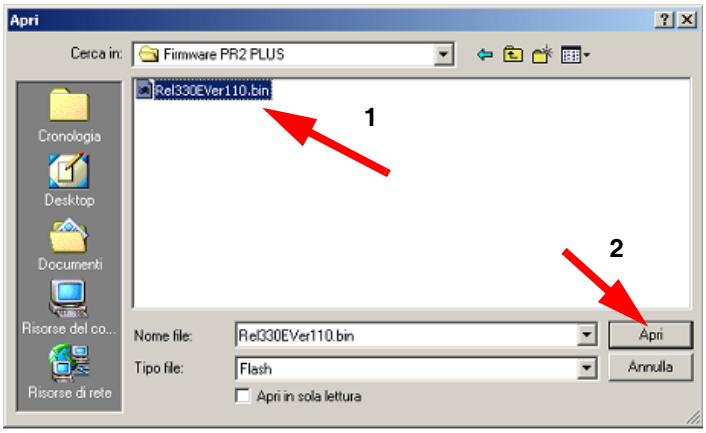


Figure A - 4 Display for selecting file containing the firmware to be transferred

9. Select the **Send** key and wait until transfer of the firmware has been completed.

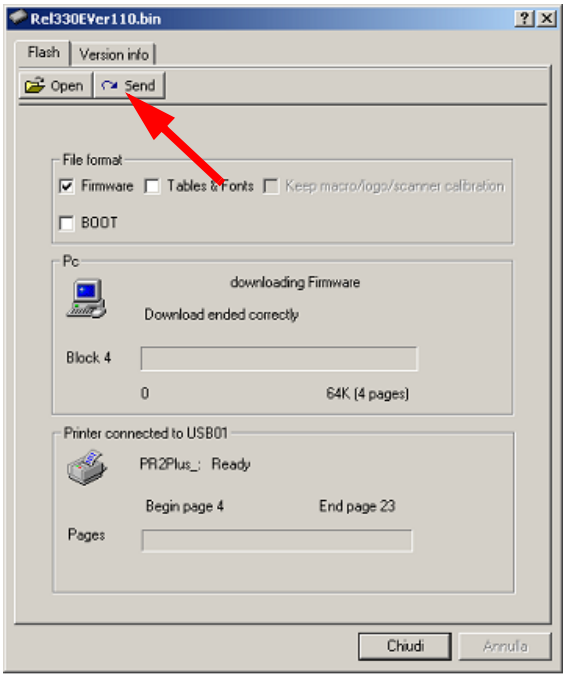


Figure A - 5 Key to send the firmware transfer

10. Calibrate the photosensors. See the section “CALIBRATING THE PHOTOSENSORS” on page 4 - 18.
    Calibrate the scanner. See the section “Calibrating the scanner” on page 4 - 28.
11. Print the Self Test again, checking that the firmware release is that required.

Forced loading of firmware

Before proceeding to force loading of the firmware, contact Technical Support
Mail box: Banking.Printers@Olivetti.com

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UPDATE STATUS

DATE	UPDATE PAGES	PAGES	CODE
04/2007	1st EDITION	142	XZAC4219
05/2007	2nd EDITION	154	XZAC4219
10/2007	3rd EDITION	160	XZAC4219-03
01/2008	4th EDITION	176	XZAC4219-04
08/2008	5th EDITION	172	XZAC4218-05